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ADDRESSES.

ADDRESS AT THE CLOSING EXERCISES OF THE ARMY MEDICAL SCHOOL, WASHINGTON, D. C., APRIL 1, 1898.

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Gentlemen of the Army Medical School: With the appointment in 1789 of a surgeon and four surgeon's mates to the regiment of infantry and battalion of artillery begins the history of the Medical Department of the United States Army. For more than a hundred years it has had the respect of the country and the profession; especially since 1832, when the rule was established that entrance to it should be through examination, severe yet fair, having regard to professional and general education and to physical and mental aptitude for service, a rule that so far as I know has never but once been set aside, except with reference to Medical Inspectors during the rebellion. What has this picked body of medical men done to entitle it to such respect, and what in deeds and words has it added to the stock of professional knowledge upon which all the world is drawing? Of its special work, its care of the soldier, it does not become me to speak, a long-time civil practitioner, who yet counts it one of the joys of his life that he was for a while in the service, and when he thinks of the Medical Staff repeats to himself with pride, *pars minima fui.* Upon a medical officer of the Army, or at least an officer of the Army must devolve the duty of showing how in peace and in war, in camp and on the march, in lowland and in highland, in city and in country, on the desert or on the sea, in many places and under varying circumstances, the members of the Corps have ever had regard to the welfare of the soldier, have protected him from outside and oncoming physical ills, have professionally cared for him when sick or wounded, and by proper feeding, clothing and housing have secured to him such health and strength as have made him in the highest possible degree the defender of his country and the conserver of the public peace.

But of what has been done for the community at large, for Medicine, its art and its science, I may speak, and that all the more freely, because of personal feelings. Almost simultaneously with the organization of the Department began the march of that army of occupation that has swept over and taken possession of the interior valley of the Mississippi, the region of the great plains, the mountain ranges of the continental backbone, the seeming desert lands between the Rockies and the Sierra Nevada, the fertile lands of the western slope, all that imperial area that stretches from the Lakes to the Gulf, from the Alleghanies to the Pacific. In the front line of the on-going thousands of pioneer settlers, and generally well in advance of it, went the Army, establishing here and there little permanent posts, centers from which offensive movements could be made, rallying points where protection could be had, the beginning of not a few of our crowded cities in the midst of great States full of people and abounding in wealth. To the medical officers at these various forts for longer or for shorter time the growing civil populations had to look for care in sickness and when injured and in many a place that today boasts, and with reason, of the eminence of its physicians and the skill of its surgeons the early chapter of professional history is the record of the deeds and the influence of the surgeons of the Army. From one know many. Dr. Richard Allison, who on Sept. 29, 1789, was commissioned surgeon of the infantry regiment, was at once ordered to the just organized post of Fort Washington, which for "seven years became the headquarters of all the armies that fought against the Indians under Harmer in 1790, St. Clair in 1791, and Wayne in 1794." He was Cincinnati's first physician; and Drake, who knew him well, says of him: "Whenever stationed here (i.e., in Cincinnati) he gave such assistance to the people of the village as made him a general favorite." Resigning in 1798 he spent the rest of his life in or near the city and was the first physician who died within its limits. "Though not profound in science, he was sagacious, unassuming, amiable and kind." (Drake.) Besides Allison, there lived and practiced at Fort Washington and in "the young village" during the first years, Carmichael, Phillips, Sellman, Elliot and Strong, of whom Sellman, after his resignation in 1794, remained in practice until his death in 1827, and Elliot, after the disbanding of his regiment in 1802, settled in Dayton, Ohio, and died there seven years later.

At quite an early day this outside practice must have been viewed with little favor by the authorities of the War Department, perhaps because it may have been found to conflict with the proper discharge of official duties, perhaps because sufficiently interfering with local physicians to give rise to political complications. Whatever the reasons therefore, the Regulations for the Medical Department established in 1814 directed that "No Surgeon of the Army shall be engaged in private practice," and like prohibition had place in the Regulations of 1821. On this subject, Surgeon Harvey Brown ("The Medical Department of the United States Army from 1775 to 1873") writes: "Probably the retention in the foregoing regulations (those of 1821), of the paragraph forbidding officers of the corps to engage in private practice will excite some surprise. It certainly did at the time, for although it was originally incorporated with the regulations of 1814 it had never been enforced; in fact the position of the frontier posts and the comparative scarcity of physicians fifty years ago rendered it often an act of humanity for them to afford professional assistance to citizens living in the vicinity of the garrison." After the distribution of these regulations,

Post-Surgeon McMahon wrote to Dr. Lovell on the subject and the Surgeon-General replied that "the regulation forbidding army surgeons to engage in private practice was intended to prevent neglect of duty by entering extremely into it, as well as an improper application of public property, which often occurred. There would be no objection to this practice provided the officer desiring it would make an application to the Secretary of War, through the Surgeon-General, setting forth clearly the circumstances, in which case especial authority would be granted." As late as 1845 the physicians of Sackett's Harbor, N. Y., protested to the War Department against the surgeon at Madison Barracks attending patients in that village. The protest was not very favorably received, if we are to judge from the letter written by the Acting Surgeon-General.

But not alone for professional aid is a debt due by many of the communities in the Middle, Southern and Western States. Scattered here and there in medical and scientific journals, and especially gathered together in the two volumes of the "Medical Statistics" issued in 1840 and 1856, and in the reports of the various departments and bureaus in Washington, is much information respecting topography, climatology, ethnology, geology, zoology, botany, each and all of these departments of what for the time being may be called local science; information gathered up and communicated by the medical officers of the army, greatly increasing the amount and accuracy of the general knowledge of the sections and districts over which the army had traveled or in which for longer or shorter time it had rested.

The debt of the physicians of the country is yet greater, for while owing as much as citizens at large for what has been given along the lines indicated, they have been the recipients of not a few technical, professional, scientific and practical contributions each of value, some of value hardly to be worthily estimated. Take from our present knowledge of malaria, of cholera, of yellow fever, of typhoid fever, of mountain fever, of dysentery, of diarrhea, the published results of the observations, experiments and studies of Sternberg, of Porter, of Pitcher, of Woodward, of Smart, of Tripler, of Coolidge, of Hammond, of Bartholow, of McClellan, not to mention many others, and the resulting gap would be wide and deep. It will be long before in any discussion of the scientific place and practical value of hygiene and hygienic studies due notice will not be taken of the labors of Billings, of Hammond and of Smart, or before any student of the history of hospitals or the methods of their construction with associated merits and demerits overlooks the published writings and the special work of Billings and of Cowles. The literature of surgery is full of the outcome of the genius and the skill of the officers of your corps. It is with no little astonishment that I read of some of the work done in pre-anesthetic and pre-aseptic days, with no skilled assistants and with most limited appliances; as Pitcher's successfully suturing a completely divided ileum and of Beaumont's conducting to a satisfactory termination a case of lacerated and contused wound in which a charge of duck shot blew off "integuments and muscles of the size of a man's hand," fractured and carried away the "anterior half of the sixth rib," fractured the fifth, lacerated "the lower portion of the left lobe of the lung and the diaphragm," and perforated the stomach.

Passing by for the present the various reports made to the Surgeon-General and published by the War Department, let us notice some of the work done, the results of which have been given to the world in journals, monographs or more formal books. I have had neither time nor opportunity of so examining the periodical literature of our country as to learn how many medical officers of the army have been contributors, to what extent and upon what subjects, a task that would have been a pleasant one had it been possible for me to undertake it; but I have found that to the *American Journal of the Medical Sciences* during its sixty years' life as a quarterly, nearly fifty of the corps contributed articles (some one, some many) on very varied topics, medical, surgical, therapeutical, obstetrical even, and if to these were to be added those who had once been in the corps but having resigned were at the time of writing in civil practice, the number would be a much larger one. In the Transactions of several of the medical congresses, international, national and special, that have been held in the last twenty-five years can be found able papers by officers of the Corps. At Philadelphia in 1876 Woodward delivered one of the general addresses, as did Billings in London in 1881; at the "Pan-American" in this city Surgeon-General Sternberg was chairman of the Section on Military Medicine and at Denver in June he will preside over the meeting of the AMERICAN MEDICAL ASSOCIATION.

To the various systems and handbooks that have appeared lately a few of the staff have been contributors. Your distinguished chief, who has received many honors at home and abroad and deserved them all, who has been especially concerned with the causes of things and has aided much in their discovery, who after a long and broad training in the school of practical work turned to the experimental side of medicine and has made himself *facile princeps* among American bacteriologists, he, with a number of his colleagues (Adair, Bache, Greenleaf, Huntington, Pilcher, Smart, Smith, Taylor, Woodhull and Woodruff), contributed to the "Reference Hand-book." Billings, scholar, writer, organizer, man of affairs, more widely known perhaps and certainly academically more honored than any other medical man our country has ever had, was one of the writers for Pepper's "System of Medicine" (on hygiene) and for Dennis' "System of Surgery" (on the history of surgery); and to the latter your professor of surgery (Forwood) contributed a masterly article on "Military Surgery." For Ashhurst's International Encyclopedia Clements wrote on the "Field Duties of Millitary Surgeons," and Bill on "Saber, Bayonet and Arrow Wounds;" the latter a clear, interesting paper, the last perhaps that will ever be written upon these subjects, almost certainly so upon that of arrow wounds.

The books that have been written on professional subjects by medical officers of the Army, though few in number, have been of decided value. As early as 1813 Surgeon-General Tilton published his "Economic Observations on Military Hospitals and the Prevention and Cure of Diseases Incident to our Army," and three years later was issued Dr. Mann's "Medical Sketches of the Campaigns of the War of 1812," together with a dissertation on dysentery and on broncho-pneumonia, both books of much interest not only to army surgeons but to those of the profession at large who may wish to know what was seen and thought and done in the earlier years of American Medicine. In 1833 appeared what may properly be regarded as

the most valuable medical contribution from the Army prior to the publication of the great Medical and Surgical History of the War of the Rebellion, Dr. Beaumont's "Experiments and Observations on the Gastric Juice and the Physiology of Digestion." The case already referred to of wound of the anterior left chest and stomach under Beaumont's care was practically healed in two years' time, and a year later (May, 1825) the Doctor commenced his first series of "Gastric Experiments" at Fort Mackinac. "In the month of June following," he writes, "I was ordered to Fort Niagara, N. Y., where, taking the man with me, I continued my experiments until August. About this time (August, 1825) I took St. Martin with me to Burlington, Vt., and from thence to Plattsburg, N. Y. From the latter place he returned to Canada, his native place, without obtaining my consent." Four years later through the aid of the agents of the American Fur Company "after considerable difficulty and at great expense" the Doctor had the man with his wife and two children brought to him at Fort Crawford, at the mouth of the Wisconsin River, "a distance of nearly two thousand miles." From now on for about two years there was carried on uninterruptedly another series of experiments on the stomach and gastric fluids. Then followed an interval of about eighteen months during which the man was at his Canadian home, after which from November, 1832, to March, 1833, the experiments were carried on again at Plattsburg and in Washington, the man being "constantly subjected to a continued series of experiments on the interior of the stomach; allowing to be introduced or taken out at the aperture different kinds of food, drinks, elastic catheters, thermometer tubes, gastric juice, chyme, etc., almost daily and sometimes hourly." The opportunity was an unique one, and Dr. Beaumont appreciating the situation had the genius to inaugurate and the patience to execute a series of experiments which, rendering him famous, was of immense importance in determining the physiology of digestion. All of his conclusions are not today accepted, but everywhere and by everyone his facts are and his labors are acknowledged and appreciated.

Years afterward the profession received from the Army another contribution of much value on physiologic subjects, the "Physiological Memoirs" of Surgeon-General Hammond, made up of various papers written during his term of service as assistant surgeon, one of them a prize essay of the AMERICAN MEDICAL ASSOCIATION. At about the same time this author, who has written so much, so well and on so many different topics, gave to the Army and the country a treatise on "Military Hygiene." The medical staff carried off another of the AMERICAN MEDICAL ASSOCIATION prizes when in 1876 Assistant Surgeon Culbertson (retired) submitted an essay on "Excisions," a volume in size, the preparation of which necessitated enormous labor, which will long remain as one of a few books that must be consulted by anyone working up the subject of operations done upon the six larger joints. From time to time we have had from the pen of Dr. Billings volumes upon hospitals, upon hygienic subjects, upon ventilation and heating, upon vital statistics, and a medical dictionary, and, as is true of all that the Doctor has written, they prove that he has ever heeded his own advice, "have something to say and say it." To Surgeon-General Sternberg students and practitioners are greatly indebted for a treatise on malaria, a translation of Magnin on "Bacteria," which came so opportunely, and his own elaborate "Manual of Bacteriology" and associated "Text-book," at home and abroad accepted as authoritative and worthy of both subject and author.

Of all the literary work done by the Medical Staff of the Army far and away the most important has been that connected with the preparation of the Medical and Surgical History of the War of the Rebellion and of the Index Catalogue. Increasing knowledge, changing views of nature and cause, variation of type, fickleness of fashion which has no little influence upon professional opinions, one and all bring it to pass that few books have other than an ephemeral existence. As the elder Gross once said to me "How seldom it is that a man's labors outlast him." But once in awhile there appear the writings of a Hippocrates, a Galen, a Vesalius, a Paré, a Sydenham, a Hunter, a Bichat, a Virchow, and they become as immortal as Medicine itself. Among the never dying will be the two great works just mentioned. The accumulation of immense material, the having at hand clerical aid in quantity and quality equal to the requirements, the countenance of a willing Department and the financial backing of a great nation permitted of that being done which had never been done before, will probably never be done again in like degree and could not have been done under any less favorable conditions. The opportunity was there and the Medical Staff of the Army had the cultivation, the judgment, the persistence, the literary skill that was required. There was most fortunate conjunction of the time, the place and the men. Had they done nothing else the preparation of the Medical and Surgical History and of the Index Catalogue would have perpetuated the names of Otis, of Woodward, of Smart, of Huntington, of Billings; and with them should be mentioned their associates of the Corps whose less prominent work was yet of no little value. At once a treasure house and a mine, the Medical and Surgical History reports facts, presents statistics, discusses theories, compares opinions, weighs treatment, and all the while bears testimony to the fidelity, the skill, and the devotion of that army of medical officers, regular and volunteer, that was fighting disease and injury during the long years of that terrible strife. In the midst of arms Law is silent, Medicine never. From camp and field and hospital she has always spoken and she never else has spoken so loud, so long, so authoritatively as in our day and on our soil. The epitome of her teaching is this History. Though the advances of the last thirty years in knowledge of the causes, the means of production, the most favorable methods of treatment of the diseased conditions prevalent in armies render even now much that was learned in the ten years before of comparatively little practical value; though alterations in armament will cause much change in number, character and gravity of wounds and therefore in the care of them, still these six ponderous volumes will long have to students and practitioners, military and civil, much more that a mere historical value, great as that may be.

Of much more present practical value to the profession at large is the Index Catalogue which with the supplementary Index Medicus has for nearly twenty years been making us familiar with what has been and is being written on each and every medical subject. In most unusual degree it has been filling a long-felt want, and both at home and

abroad has been furnishing students and writers with what was heretofore unattainable. The magnificent library around about us, in so great a degree the outcome of the labors of Dr. Billings, has supplied the material for the work. The high scholarship and peculiar fitness for editorial supervision that have long characterized Dr. Billings and his co-laborer Dr. Fletcher have guaranteed fulness and accuracy of selection and classification; the abundance of clerical aid has secured extraordinary regularity and rapidity of appearance of the successive volumes. A first series completed, a second is bringing the catalogue up to date; and the declaration may safely be made that the Medical Department of the United States Army has accomplished the most gigantic, important and useful medical task known to history. Over and above this literary work it has accumulated stored and scientifically arranged a museum that so far as relates to the diseases and injuries of soldiers is unapproached and in all probability unapproachable.

Keeping in mind the things done, the services rendered, the influence exerted by the officers of the Medical Staff through all these many years, who can rightfully refuse to the Corps full meed of respect, full measure of honor? True, more perhaps might have been accomplished; not a few bright minds have suffered eclipse; there has been much loitering on the way; but our Country and our profession are and ought to be proud of their most carefully selected body of medical men. Many of its members have gone out into civil life, carrying with them those principles of honor and integrity and devotion to duty that are the very life and soul of an Army Officer. You may well take pride in the labors and the successes of such general practitioners as Heustis and Pitcher and Porter, of such surgeons as Van Buren and Weir and Gouley, of such gynecologists as Homans and Lee, of such oculists as Thomson and Norris and Fryer, of such laryngologist as Asch, such alienist as Cowles, such anatomists as Isaacs and Allen, such chemists and scientists as Torrey and Bache, such zoologists as Coues and Schufeldt. The names of at least twenty-five of the medical teachers in almost as many schools have at one time or another been borne upon your rolls, and among them are those of Bartholow and Dunster and Glison and Pooley.

Thanking your Dean and the Surgeon-General for the honor that they have done me, it is with much pleasure, gentlemen of the Army Medical School, that I congratulate you on the completion of your academic labors and wish you all success in the life that is before you. In having the opportunities for special training here afforded you have been far more fortunate than were your elders. Of all the good work that Surgeon-General Sternberg has done none will prove to have been better than the establishing of this School, and you may be sure that in every effort to increase your scientific knowledge and to add to the sum total of the world's information on matters medical you will have the sympathy and aid of your Chief. Personal experience long ago taught him how hard it is to make bricks without straw, to follow out in army life careful continued accurate investigations without the support of—more, in the face of the opposition of—the higher officers of the Department. With you, under the present order of things, it will certainly be, the more labor the more favor. Will you pardon me if I suggest to you that while you are military surgeons you are medical men and Medicine is greater than any of her departments. As far as may be possible, put yourselves in close touch with the general and local profession, and as you may freely receive freely give. The long time isolation of the surgeons of the Army has come to an end with the conditions that necessitated the establishment and maintenance of many and widely separated posts. As your duties call you to the vicinity of cities that are, in greater or less measure, medical as well as commercial and political centers, take your places as members of the greater and higher Medical Corps that embraces all the good men and true who are advancing Medicine and benefiting mankind. Again congratulating you, I bid you God speed.

THE RELATION OF THE MEDICAL AND LEGAL DEPARTMENTS OF RAILWAYS.

President's Address Delivered at the Annual Meeting of the American Academy of Railway Surgeons, at Chicago, Ill., Oct. 6-8, 1897.

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CONNECTION BETWEEN LAW AND MEDICINE.

Law and medicine, like "knowledge and wisdom," are "far from being one," but here Cowper's distinction ceases to apply, for the connection between the two professions is close and intimate, and each new discovery in this age of rapid, scientific progress unites more closely these great branches of learning. Medical jurisprudence has widened far beyond testamentary capacity, commissions in lunacy and expectation of life. The toxicologist and the chemist are quite commonly assistants of both commonwealth and accused in capital trials; the surgeon, the bacteriologist and the biologist are hand in hand with attorney and counsellor in civil and criminal causes. Where the *Green Bag* or the *London Lancet* was once filed alone, the *Medico-Legal Journal* now shares shelf space and attention, and the journals of both professions devote much printed space to medical jurisprudence and medico-legal surgery.

The Medico-Legal Society, from an insignificant local association, has grown to be an international organization; strong numerically, stronger intellectually, strongest in original research and investigation; throwing light upon problems which have heretofore puzzled alike the disciples of Blackstone and of Æsculapius, including in their numerous courses of study every subject of common interest, from psychics and hypnotism to compulsory vaccination; from toxicology to our own branch of railway surgery.

POPULAR HOSTILITY TO RAILROADS AND THEIR SURGEONS.

It is popular and profitable to criticise the grinding railroad monopolist in print and on the platform; it is politic in a court room to sneer at the salaried surgeon who has given his best and most conscientious professional services, often under unfavorable and distressing conditions as a "corporation tool and hireling" whose testimony, "well, gentlemen of the jury, you know what expert testimony is worth, especially when the expert has a life position with the corporation. I leave it to your own common sense." In the determined effort to dominate the minds of twelve men, sometimes unintelligent, often uninformed, always

uncertain, courtroom proceedings in railroad cases too frequently degenerate into oratorical appeals, which utterly disregard the underlying, unchanging principle of justice, to be applied without fear or favor to individuals as well as to corporations.

HUMANE PROVISIONS MADE BY CORPORATIONS.

Corporations, like individuals, though born in sin, are not totally depraved. A critical public may attribute them to policy and self-interest, nevertheless the fact remains that the legally and proverbially soulless railway corporations make more and better provisions for accident and emergency cases than individual employers and partnerships engaged in business equally hazardous. The emergency case with bandages, etc., in each engine, the stretcher in every station (Pa. R.R.), the ambulance in large cities, the hospital owned, equipped and operated by the company (U.P. R'y.), or the hospital to which the company makes an annual donation in consideration of care for injured employes, accident and emergency cases (Pa. R.R.), the salaried surgeons at central points, and the rural practitioners whose infrequent services are compensated by a regular "annual" (Pa. R.R., Reading R.R.), all are active agents for the alleviation of the ills of humanity, though the public deny their principal the credit of putting them in action for humanity's sake.

RELIEF DEPARTMENT, ETC.

Is it solely for the benefit of the company that relief departments are organized with sick and death benefits for employes, whether the illness or death results from accident or from natural causes? Is it solely for the company's benefit that surgical attendance is furnished during disability from accident in the company's service; that trusses, artificial limbs, etc., are supplied for injured employes, that pensions are planned for old age?

Certainly the relief department contract bars the beneficiary from bringing suit against the company. But for the numerous accidents caused by his own negligence or the negligence of his co-employes, the employe had no legal right of action. Yet in both these instances the relief department pays the monthly disablement benefits for a year or more (Pa. R.R., Reading R.R.)

NECESSITY FOR RAILWAY PRACTITIONER AS A SPECIALIST.

To reiterate a truism, railroading is a hazardous occupation. Though the greatest possible care be observed, though the latest improvements be used, some accidents are inevitable, some collisions are sure to occur; trainmen are as surely predisposed to certain diseases as glass cutters or workers in emery. Higher rates of speed, lengthening miles of track, increasing forces of train workers strengthen and render imperative the necessity for an intelligent body of medical men who make railroad practice a specialty. The opinions of a fickle and often wholly unreasonable public have small place and smaller influence in a profession which listens to the first cry of the living and the last moan of the dying, and hears through all its years of active service only the wails, the woes and the weaknesses of humanity. Medical men have no time to reply to healthy critics. The sick must be healed, the helpless must be strengthened, the mangled must be relieved, and whether he be oculist or neurologist, gynecologist or railway surgeon, the man who gives his best services to the sick and dying is accountable to his own conscience, and to that only, whether his compensation be the check of a corporation or an individual, gold from a bank or silver from a stocking, or whether such compensation never comes at all.

RAILWAY SURGEON HONEST RATHER THAN INTERESTED WITNESS.

No individual seeking to perpetrate a fraud upon a railroad company through an eloquent appeal to the sympathies and prejudices of a jury, and the complaisant testimony of irresponsible physicians with an eye single to the enlargement of their private practice, has a right to expect any evidence from a railway physician but the truth. And no general manager, no division superintendent, no relief department, no board of directors, no corporation, seeking to perpetrate a fraud against an individual through pressure upon salaried employes has a right, because of salary paid for medical services, to any testimony from a railway surgeon save "the whole truth and nothing but the truth."

ANOMALOUS POSITION OF RAILWAY SURGEON AS A WITNESS. THREE-FOLD RELATION.

In hospital or home, in collision or office examination, the railway surgeon is as other physicians, but as a witness in actions against the railroad by persons who claim to have been injured through the company's negligence, his position is strikingly anomalous:

1. He is the employe of the defendant railroad in whose behalf he is called to testify.

2. He was the physician of the plaintiff against whom or by whom he is called to testify at the period most in controversy. Further, this professional relation was many times initiated under circumstances which gave the plaintiff no option save death or acceptance of the railway surgeon's services, and sometimes a merciful insensibility deprived him of any option whatsoever.

3. He is called by the defendant company as an expert witness in their behalf.

The difficulties of this three-fold position are self-evident, the responsibilities definitely aligned, the duties not so clearly defined.

Having survived the omniscience of youth, the writer submitted the following hypothetical question to ten physicians and ten attorneys, equally divided in numbers as to affiliations with or against corporations.

What do you, as a physician (or attorney), think a railroad company has the right to expect from an attending physician in their employ, as witness in an action brought against the railroad for injuries alleged to have been received through the company's negligence?

Twenty unqualified declarations for the "whole truth and nothing but the truth," are followed by varying comments on statutory regulations concerning medical witnesses, and by criticisms of railway influence on supreme courts, and of juries for unjust verdicts against companies in obedience to popular clamor.

AS MEDICAL EXAMINER.

There can be no question that if the railway physician comes in only as medical expert for the company, having examined the plaintiff in that capacity, he is at liberty to tell anything he learns from such examination.

AS ATTENDING PHYSICIAN. LEGAL BARRIERS.

If he be called by the company as the surgeon who attended the plaintiff at the time of the accident or disablement, in many States his lips are sealed by ex-

press statutory enactment forbidding physicians to divulge facts learned in the course of professional service. Others effect the same object by not permitting physicians to divulge facts which would be a bar to the patient in a subsequent civil action. (Penn, etc.)

On the other hand, membership in a relief department commonly includes contractual renunciation of the right of action; hence, for a large body of employes, the surgeon's testimony is not needed. The written law of at least one (Col. State Statutes) State, however, expressly prohibits contracts (conflicting interests) between corporations and their employes, which relieves the company from liability for accidents caused by the negligence of the corporation or its servants, and pronounces such contracts null and void. Here the railway surgeon comes in as the necessary and most responsible witness on both sides, as he must needs be, in many cases where the plaintiff is an injured passenger.

PROFESSIONAL DUTY.

His duty to his profession requires that he state the facts so simply that the non-professional juror may understand; so accurately that his brother physicians may recognize their physiologic correctness, gather helpful ideas from novel and peculiar cases, and hints for future testimony.

PROFESSION AND DUTY THERETO FIRST, RAILWAY EMPLOYMENT SECONDARY AND INCIDENTAL.

The matter of salary has no bearing on the subject. From his student days till his hands are stilled, the surgeon cheerfully gives the same skill to the poor that the rich receive for large reward. The great and beneficent discovery of his life is not patented like an air brake or a car coupler, but freely given to humanity through printed and professional channels. He is first and always a physician; the railway employment is only an incident; if it terminated he would still be physician and surgeon. It follows that the duty to himself, his profession and his patient, is his highest duty, and no railroad company or its attorney has any right by suggestion, intimidation, or, in any manner whatsoever to seek the suppression of the facts in the case as the attending surgeon believes them to be.

"Keep your eyes and ears open and your mouth shut," is an excellent rule in the ordinary line of duty, for hospitals, and in the confusion of accidents and emergencies, but to expect a physician to keep silent when duty demands and the law lays upon him an obligation to speak, is to suggest indirectly that he is the unhappy possessor of a strabismic or an astigmatic conscience.

RELEASE BY COMPANY.

Where the facts and circumstances are against the company's interest it is quite as much the attending surgeon's legal and moral duty to disclose them as where an unscrupulous plaintiff seeks by fictitious ailments and symptoms to procure an award against the company to which he is in no way entitled. If his view of "the whole truth and nothing but the truth" conflicts with the company's interest, the attending railway surgeon should be altogether released and relieved from acting as a witness in their behalf. The novel spectacle of a railway surgeon testifying against his employing company would certainly be unprofitable to the corporation in the first instance; but in the long run, the self-evident facts that the surgeon employed maintained his professional and individual honor, and that the company sought only truth and justice in the case, would prove of financial advantage to the corporation, lessen the number of suits brought, decrease the amount of damages awarded, and overcome the existing legal prejudice against railroads and their employes.

PREJUDICE AGAINST EXPERT TESTIMONY.

Physicians have sold themselves in times past to tricky claimants; physicians have been bought in bygone days by conniving corporations, with the legitimate result that expert testimony, however honest, however skilful, however conservative, is today at a discount with both court and jury. The expert witness is a subject of raillery; his testimony accounted of so little value that it is passed over in silence, or only commented upon in a general way. When the medical expert is a railway surgeon the jury's prejudice is increased fourfold. The cross-examiner's gibes and thrusts are received with ill-concealed approval. In a recent case the plaintiff's attorney in his Buzfuzian appeal to the "arbiters of the destiny of a freeman," vehemently inquired, "gentlemen of the jury, are your opinions to be formed and shaped by that brass-buttoned receptacle of railroad rations?" And the jury promptly negatived the interrogation by an award of $10,000 to the plaintiff. Extreme! Not so extreme as a late Pennsylvania case which gave a plaintiff $30,000 for an injury which was a physiologic impossibility under the facts stated. (Webster vs. Electric Traction Co., Philadelphia, Pa., 1896.)

ON THE STAND. PHYSICIAN'S BEST METHOD TO DISPEL PREJUDICE.

The medical expert and the railway surgeon are admittedly necessary witnesses in suits brought against the company by persons injured. The prejudice of courts and juries against expert testimony, and the prejudice of juries against railroads and persons in their employ are matters af common knowledge. Therefore, it behooves the railroad physician to consider how he may most effectively destroy the barriers which ignorance, prejudice, and the misconduct of others have builded in his way as a witness.

EXAMINATION.

He is familiar with the facts in controversy, he knows the medical principles applicable to them. Consultation with the company's soliciter has covered the interrogatories of the direct examination. His honest, conscientious statement of the case is strongly in favor of the railroad. Then the cross-examiner takes him, and the real battle commences with an expert inquisitor, whose sworn duty to his client requires that he shall exert every effort to weaken the force and effect of the surgeon's testimony. In the hands of a wily antagonist who seeks (cross-examination) to annoy, embarrass, confuse, irritate, anger, disconcert and ridicule him, it is so much easier to say what a witness should not do than to make affirmative suggestions, that I have put my own few thoughts mainly in negative form.

SUGGESTIONS AS TO TESTIMONY.

1. Use no technical language, unless absolutely unavoidable. The juror is a plain man, ignorant of medical terms. The speech of the common people is his own tongue, and the man who makes him understand, wins the verdict. The sternum and the patella are unknown quantities to him; the breast-bone and the knee-pan are useful members, the value of which to a wage-earner he can estimate with considerable

accuracy. He has two eyes as well as two ears. A bone, a lead pencil, and a twisted piece of paper sometimes double the chance of success. Object teaching is the natural method; demonstrate the facts where practicable.

2. Avoid controversies with the cross-examiner. The war is unprofitable because unequal; he can strike when the surgeon is down; his last turn with court and jury comes when the medical man is no longer an active participant in the case.

3. Keep sweet. He who loses his temper loses his cause. Questions are frequently asked for the express purpose of irritating the surgeon; an exhibition of anger is the very result desired, and the first ruffling of composure is welcomed as a successful assault on the enemy's works.

4. Talk slowly; take time to answer questions fully. Minds untrained in medical lore can not follow and comprehend professional explanations at the same rate of speed as assistants at a clinic.

One of the most common methods of perplexing a witness and neutralizing the effect of his testimony is to fire volleys of rapid questions at him. Half finished, hastily given answers create erroneous and contradictory impressions; hence the necessity for deliberation throughout expert testimony, and an utter disregard of attempts to undo the surgeon through undue haste.

5. Answer the question asked. He who volunteers information or explanation digs a pit into which the cross-examiner shall shortly but surely tumble him. In the infrequent instances where "yes" and "no" will not suffice as answers, an explanation of the cross-examiner's ingenious verbal trap will be developed by questions of opposing counsel on re-direct examination, or will be permitted upon request to the court for opportunity to make the matter clear.

6. Answer briefly. The best approved judicial proceedings are in accord with the petitions of those Indian Territory negroes who habitually besought the Judge of all hearts to grant them "long prayers and short answers." The plaintiff in his complaint or declaration "ever prays," and the defendant in his answer "will ever pray," at considerable length and with much technical repetition, but that surgeon most helps his cause who in his testimony gives short answers and shuns technicalities.

7. Say, "I do not know." The surgeon who knows everything is clay in the hands of the cross-examiner, and malformed or formless clay in the verdict of the jurymen.

8. Do not discount the medical information possessed by the cross-examiner. Thousands of lawyers beside Lord Eldon have studied medicine before reading law. Lacking a medical education, the lawyer prepares his case by repeated consultations with leading physicians, by reading articles in medical journals and by careful examination of the accredited medical authorities.

As was recently said by a distinguished New York attorney in addressing the graduating class of a great medical school, "The medical profession differs from the legal in the fact that the physician is not expected to know law, but the lawyer must have a familiar and comprehensive knowledge of medicine."

JOINT AIMS AND ACHIEVEMENTS OF MEDICINE AND LAW.

Personally the doctor may never need the lawyer's services, though the attorney is sure to require the physician's ministrations; but professionally the advocate who fights against oppression is the blood comrade of the physician who battles against death. Together they have warred for the rights of the poor, the helpless and the despised; together they have defied kings and corporations. When, in the darkness of the middle ages, all other good seemed lost, the doctor and the barrister stood alone as mouthpieces and interpreters of the common people—solitary champions of liberty and justice, unconquered and unterrified by kings. In our own day, through their joint efforts, boards of health have been organized, State and Government inspection of water and food products introduced, reformatories and insane asylums reconstructed, prison conditions ameliorated and upheaved, and many other great reforms instituted.

HIGH MORAL STANDARD DEMANDED OF PHYSICIAN AND ATTORNEY.

There can be no human liberty without law; there can be no healthy human liberty without medicine; the tyranny of rulers and the tyranny of disease alike reduce men to slavery. "*Noblesse oblige*," said the old French king, and he who breaks these shackles from humanity must regard neither men nor money, neither position nor power. Leprosy and smallpox are less to be dreaded than the moral contagion of dishonor. Whether in clinic or court room, whether beside the sickbed or before the bar, temporizing, policy, the "necessity" which Pitt called "the argument of tyrants" and "the creed of slaves," are only weights he he has laid aside. His rule of life is the Supreme Law enunciated by the Great Healer: "Ye shall know the truth, and the truth shall make you free;" and his earthly ambitions are summed up in Wolsey's counsel to Cromwell:

"Be just and fear not.
Let all the ends thou aims't at be thy country's,
Thy God's, and truth's, then if thou fall'st, O Cromwell,
Thou fall'st a blessed martyr."

—*Shakspeare, Henry VIII: Act III: Sc. 2.*

THE SURGERY OF THE BRAIN.

Address delivered before the Austin Flint Medical Society, Clear Lake, Ia., July 20, 1897.

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The surgery of the brain and its membranes has within the last two or three years received more merited attention than during the preceding decade, when the great surgical world spent a large portion of its energy on that important class of diseases which are found in the abdomen and which are now so generally subjected to surgical treatment.

All subjects which directly affect the life of an individual are of special interest to the conscientious physician and certainly there is no class of diseases which are more obscure in their symptomatology, more erratic in their course, more discouraging in their treatment or more uniformly fatal, when managed expectantly, than the lesions of the brain, which are now subjected to surgical treatment.

The peculiar anatomic conditions in which the organ under consideration is placed renders the opportunity for careful observation of very rare occurrence, while the location of the vital centers in the lower brain precludes all thorough and systematic investigation upon man. It is only by clinical observation then, that even a fairly comprehensive knowledge of the location of the foci of physiologic action and of diseased processes has been adduced. The pathologists have discovered inflammatory, suppurative and adventitious processes in the brain for many years, and they have also been able to classify the various lesions which are found therein, and even to finally differentiate between types and degrees thereof, but until these lesions could be clinically located with a fair degree of certainty, the local treatment was of necessity purely empirical.

Experimental research on animals and clinical observation with postmortem findings in man, led to the discovery of motor centers and later of centers for special sense, and more recently closer studies have outlined the cortical centers for different varieties and degrees of physiologic manifestations. With the location of the physiologic centers came the possibility of the clinical diagnosis and location of disease processes. As these processes were subjected to surgical treatment in other parts of the body with a large degree of success, it was but natural that this field was considered an inviting, though admittedly difficult one, for the exercise of the surgeon's skill and dexterity.

Operations upon the brain were so uniformly fatal in pre-antiseptic days that the surgery of the brain was, by common consent, limited to emergency work. The protection afforded by antiseptics and asepsis has rendered the cranial cavity safely approachable, while the various improvements in the methods of trephining and means for its execution have rendered much of the cranial contents readily accessible.

Successful cerebral surgery depends upon three essential elements, viz., the diagnosis of the character of the disease, its anatomic location and the proper operative technique. The purpose of this paper is to briefly present the nature and diagnosis of cerebral lesions, to emphasize the importance of cerebral localization and to discuss the advisability of subjecting our patients with cerebral diseases to operations for the relief of their troubles, and if an operation is deemed advisable, how it should be performed to obtain the best results. The diagnosis of most of the conditions which we will consider should be made or confirmed by a neurologist when possible before being surgically treated.

CEREBRAL LOCALIZATION.

In considering this subject it is well to remember that while there are points or small areas of the brain in which the reaction to stimulation is most marked, the area of lesser reaction extends in most instances far over into other areas so that the various centers or areas overlap each other. This fact explains the observation that when a primary anatomic center only is removed the function ascribed to that area may not be wholly paralyzed. It is also recognized that these areas are not confined to any single convolution or even lobe, but may be located in two or more.

The areas which are now generally conceded to be definitely located are the motor-sensory area, the speech area, the visual area, the auditory area and the area for smell and taste. In addition, later investigation seems to have established the fact that there is a center or centers for muscular sense and to have determined its probable location.

1. The motor-area is located in the convolutions bounding the fissure of Rolando and those adjacent thereto; those of one hemisphere control the movements of the opposite side of the body, while the general arrangement of the centers is in inverse order to the location of the parts controlled; the highest centers being for the leg and foot while the lowest are for the face, etc. As most people are right handed the left side of the brain is best developed and usually marks the location of the special sense areas.

The upper third of the anterior and posterior central convolutions and that joining them controls the actions of the lower extremities; the toes being controlled by the most posterior part and the foot, leg and thigh in the order named from behind forward.

Immediately below in both convolutions for a distance of about one inch are found the areas which control the action of the shoulder, arm, wrist and hand. The former being located above, in the anterior central convolution, while the hand is governed by the area below, in the posterior central convolution.

The lower third of the Rolandic region marks the location of the areas controlling the movements of face, tongue, etc.; the cheeks and eyebrows being governed from the upper and anterior part, the tongue and larynx by the lower and anterior part, while the movements of the mouth and pharynx are controlled by the lower and posterior part.

In the posterior part of the superior frontal convolution the center for the muscles of the trunk is found. (Horsley.)

The posterior part of the middle frontal convolution controls the movements of the head and eyes, the former being located above the latter. Stimulation causes conjugate movement in the opposite direction.

The tactile sensory areas are apparently located in connection with those motor centers found in the posterior central convolution, which will have been recognized as controlling the most intricate and delicate movements of the body, especially those of the toes, fingers and lips. Immediately behind these centers the area for muscular sensation is also supposed to be located.

2. There are four speech areas which are all located on the left side of the cerebrum in right handed persons and on the right side in left handed persons.

The motor speech area is located in the posterior part of the third or inferior frontal convolution and controls the movements concerned in the act of speaking. Destruction of this area causes motor or ataxic aphasia. When it is only partial it may be manifested by an inability to use certain words or properly place certain letters.

The auditory speech area is located in the superior and middle temporal convolutions. Destruction of this area causes a loss of memory of word sounds—word deafness. The patient is unable to recall the names of objects or to understand the language spoken.

The visual speech area is located in the lower parietal region, in the angular gyrus. Its destruction causes loss of the power to read or understand written language—word-blindness.

The location of the area giving us power to write is not definitely determined. There are evidences that it is located in the inferior parietal region but

there have been cases in which destruction of the motor speech area has caused its loss—agraphia.

3. The visual area or sight center is located in the cuneus and cortex of the occipital lobe. As each lobe receives impulses from half of both eyes, a lesion causes hemianopsia, half blindness in both eyes, and the field of blindness is on the opposite side of the lesion, according to Starr, while the Charcot theory is that a lesion of one center causes total blindness of the opposite eye.

4. The auditory area is located in the first or superior and second or middle temporal convolutions. Each ear being connected with both hemispheres, the effect of a unilateral lesion is only partial deafness and is usually not noticed. Bilateral lesions cause total deafness.

5. The area for sensations of smell and taste is located at the tip of the temporal lobe on its inner or under surface. Each lobe is related to the organs of both sides and hence unilateral lesions cause only diminished function.

The location of the psychic center is undecided. Lesions in the frontal lobes have been manifested by little else than mental symptoms, while lesions have been found, postmortem, in the frontal lobes of subjects who have been free from any mental symptoms.

The symptomatology of lesions limited to the basal ganglia is unknown. It is only when the lesion encroaches upon the internal capsule or some radiating or connecting fibers that symptoms are produced.

Lesions in the pons and medulla give rise to irritation or destruction of the cranial nerve centers of the particular region involved.

The cerebellum controls the equilibrium of the body and, therefore, disturbance of its structure is productive of vertigo and staggering.

The works of Ferrier, Horsley, Henschen, Knapp's table in "Strümpell's Practice," Starr and others present the subject more in detail. The diagnostician who contemplates work in this class of diseases should master at least this much of what is known about cerebral localization while the operator should, in addition, be able to locate the areas on the surface of the skull.

The subjects which will briefly claim our attention are trephining for fractures of the skull, intra-cranial hemorrhage, suppuration and tumors, epilepsy, insanity, imbecility, hydrocephalus, removal of Gasserian ganglion and for pain.

Fractures of the skull.—This subject is considered because it is so frequently attended by evidences of injuries to the brain and its coverings and especially as the expectant treatment thereof is a potent factor in producing those pathologic conditions—hemorrhage, inflammation, abscess, etc.—for which we are called upon to operate subsequently.

Fractures are divided into simple, compound, complicated and depressed. A simple fracture is one unattended by a wound; a compound, one connected with a wound; a complicated, one accompanied by extensive damage to overlying soft parts, or positive injury to the brain or its membranes or to the vessels, or by an infection of the external wound, and a depressed fracture is one in which one fragment is lower than normal and which may or may not be attended by symptoms of cerebral compression. A depressed is a complicated fracture and it may be either simple or compound. Frequently, as in gunshot wounds, we find the three latter divisions associated.

In the absence of a wound, the diagnosis of a fracture is frequently purely conjectural. The nature and direction of the operating force should always be carefully considered. The presence of a well defined swelling with sharp borders due to an exudate or blood clot in the scalp or beneath the periosteum may readily lead one to believe that a depressed fracture is present when, in fact, there is only a circumscribed contusion. Likewise the possibility of congenital and other defects in bone should be considered.

When there is a wound it is, as a rule, easy to determine the condition of the bone although it may be necessary to enlarge the opening to definitely settle the question.

In every case in which there is doubt, the scalp should be sufficiently incised to fully expose the area and admit of a thorough digital and ocular examination. Two preliminary conditions are however requisite: 1, the area should be thoroughly shaved and rendered positively aseptic; 2, the operator should be prepared to perform any operation which the local conditions indicate. There has been much discussion as to the treatment of skull fractures, which has resulted in the formulation of many sets of rules to govern the surgeon. It, however, remains a fact that even those of largest experience are frequently at a loss to know whether to operate or not in a given case. In compound fractures some sort of an operation is always indicated for the excision of bruised and lacerated tissues, the removal of splinters of bone and foreign bodies, the elevation of depressed bone, controlling of hemorrhage, and at least for the proper closure of the wound. In bullet wounds it is generally conceded to be best to leave the missile undisturbed, unless it can be definitely located in a superficial position, the injury to the skull being treated as a compound fracture. The question of drainage must be decided upon the indications of each case. The frequency of the occurrence of traumatic epilepsy and other serious secondary effects, from the old plan of treating fractures of the skull and the fact that when properly performed the operation of trephining is practically without mortality, has led to the establishment of a more advanced plan of treatment in this class of cases. Even in simple fractures the patient should be subjected to operation when there is depression of a fragment or where there are evidences of injury to the intracranial tissues. The full extent of the damage can be determined only by this method, while anything short of it does not permit of adequate treatment where so much is in doubt. If more fractures were thoroughly exposed, more depressions would be detected, and if more depressed fractures were elevated, more blood clots turned out and more spicula of bone removed by trephining, as a primary operation, we would have less epilepsy and other sequelæ which are so frequently traceable to a trauma of the head.

In all cases of fracture of the skull the general treatment should comprise complete physiologic rest, free intestinal and renal elimination and, if necessary, the application of ice to the head.

Intracranial hemorrhage.—In cases when progressive symptoms of compression supervene upon the receipt of a trauma, which are attended by the manifestation of stimulation (irritation) or paralysis of a motor area the diagnosis of hemorrhage is probably justifiable. The gradual development of stupor followed by coma and stertorous breathing, a slow pulse,

a dilated pupil and a rise of temperature to less than 103 degrees makes the symptomatology complete. The differentiation between extra-dural and intra-dural hemorrhage is not sufficiently determined to be of practical value.

Statistics demonstrate the demand for operation in cases where any considerable amount of hemorrhage has probably occurred. Park gives Weisman's reports in which of 147 cases treated expectantly, 131 died, while of 110 treated by operation only 30 proved fatal. Selection of cases would undoubtedly improve these figures. It should be remembered that most hemorrhages occur from the middle meningeal artery and that they are most frequently extra-dural. Where the focal symptoms point to compression of the opposite side the operation should be performed on the side presenting the symptoms.

Intra-cranial suppuration.—This class comprises abscess, suppurative leptomeningitis and thrombo-phlebitis. Abscess of the brain may be traumatic or non-traumatic. The former variety may develop either soon after a traumatism or years later. Where a wound has been present it is usually indicative of its having been the seat of prolonged suppuration. The non-traumatic variety is usually the result of the extension of an infection from the middle ear, although it may follow an orbital or nasal infection, or may be of metastatic origin. One of the strangest features of cerebral abscess is the great variance of the time of its occurrence. The symptoms of an acute abscess may subside or none may appear, and yet, from some unknown cause, months or years afterward, the symptoms of abscess suddenly develop. Nature has probably succeeded in confining it to a definite region and if that happens to be in an unimportant area of the brain no symptoms may be occasioned thereby, until the protecting wall gives way, when all evidences of an encephalitis are manifested. In making a diagnosis we should always look for a traumatism or a primary suppurating focus, as upon its presence or absence may rest the differentiation from cerebral tumor. In addition to the headache, vomiting, vertigo and symptoms of pressure there may be fever or a subnormal temperature with the probable absence of ocular evidences. In latent abscesses the symptoms are especially obscure and its diagnosis often impossible. Abscess following middle ear disease is of frequent occurrence and deserves much more attention than is usually accorded to it and demands radical treatment. Suppurative otitis may be followed by a leptomengitis or a septic thrombo-phlebitis and abscess. If the perforation is upward the lesion will be located in the temporo-sphenoidal region; if backward, in the cerebellar region, while if by an extension of the process through the mastoid veins it will cause a thrombo-phlebitis of the sigmoid sinus.

The intimate connection of the mastoid veins with the lining of the mastoid cells and the sinus render infection by this route especially likely to occur. The differential diagnosis of the various forms of intra-cranial infection is not always possible since two or more varities are likely to be associated. Jansen has given this subject special study and states that pyemic fever with repeated chills following a suppurative otitis are indications of sinus thrombosis and if these are accompanied by symptoms of vertigo, restlessness, nausea, rigidity of neck, stupor, etc., operation is demanded. ("Ann. Surg." Vol. xxxiii.) The statistics are very favorable to radical operative treatment.

The treatment of suppuration within the cranium should be upon the same principles as in other regions of the body, with special indications for prompt and radical measures, since the prognosis of expectantly treated intra-cranial suppuration is so uniformly bad. When abscesses can be located they should be exposed and thoroughly disinfected and drained, preferably with gauze packing. If the abscess is in the temporal region, Von Bergman ("Ann. Surgery," Vol. xxiii.) advises operating so as to expose the tympanum and then extending the section as the conditions may indicate. Likewise in sinus thrombosis the sigmoid fossa can be easily reached after exposing the mastoid cells. When thrombosis of the lateral sinus is present the condition of the interal jugular vein should be determined, and if it is thrombosed it should be exposed in the neck, and, after ligation below the location of thrombosis, it should be opened and the sinus and vein thoroughly emptied and disinfected. When the symptoms point to a suppurative leptomeningitis the indication is for thorough drainage, the same as for suppuration in any other serous cavity.

The cranium should be trephined below the superior curved line of the occiput and also above the posterior part of the zygoma (Park). These openings will admit of free irrigation and drainage.

Intra-cranial tumors.—The most common varieties of brain tumors are sarcoma, glioma, tubercle, secondary carcinoma, syphiloma and cysts, in the order named. The symptoms of tumor partake of the same general character as those of all lesions which increase intracranial pressure. Persistent headache, intractable vomiting and optic neuritis, with evidences of focal stimulation or destruction and the absence of a primary suppuration focus, are strongly indicative of cerebral tumor, and should differentiate it from other lesions. Our present knowledge of the symptomatology of tumors is not sufficient to enable us to differentiate except in a general way. The smaller, harder, more circumscribed and less vascular the growth the better the prospects of recovery. They are more frequently located in the base and the cerebellum in children, while in adults the cerebral cortex is fortunately most frequently involved.

About one-third of all brain tumors are located in the basal ganglia and, therefore, situated in a surgically inaccessible region. Nearly one-fourth of the tumors given in "Starr's Tabulation" were located in the cerebellum, whence tumors are excised with the greatest difficulty. One-tenth of the number were multiple in character. The remaining tumors were located in accessible regions. Of these many did not present the necessary focal symptoms, while others were of such size or character as to have precluded their removal. It is then definitely understood that only about 6 per cent. of all brain tumors can be successfully removed by operation. The fact that the diagnosis as to character and location of the lesion is frequently obscure, and that when made it is frequently erroneous, coupled with the inoperability of such a large percentage makes the present field of operative treatment of brain tumors very limited and the prospects for relief in general poor indeed.

Cases of syphilitic and even non-syphilitic growths have been relieved by antisyphilitic treatment, therefore, all cases of tumor of the brain should be subjected to a course of heroic treatment for at least three

months before operation is resorted to. Notwithstanding the limits of the operation and the recognized dangers of the procedure, we must remember that cases which are not relieved by medication gradually grow worse, until life becomes one of mental degeneration and often one of great misery.

In nearly one hundred recent cases collected by Starr the results of the operations have been successful in 46 per cent. The result of operation in cerebral tumors is more favorable than in those located in the cerebellum. Even in cases where we are unable to definitely locate the growth, exploratory operation seems to be justifiable when the hopelessness of the case is considered. The opening of the cranium frequently relieves the suffering of the patient by reducing the intra-cranial pressure.

Brain tumors which can be diagnosed and located in the accessible parts of the cerebral cortex should be exposed by operation after a thorough course of medication. If the tumor is circumscribed, hard and superficial, the prospects for a cure are good. In operating upon cysts it is necessary to remove its walls to prevent recurrence. Filling the cavity resulting from operation with goldfoil, as advised by Estes (JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1896) has not been sufficiently practiced to render its general use advisable.

Epilepsy.—Two forms of epilepsy are amenable to operative treatment: Jacksonian and traumatic. General epileptic attacks, unaccompanied by a definite premonitory aura and in which the convulsion does not begin in any particular group of muscles, are generally not amenable to operative treatment, since one of the preliminary requisites to successful brain surgery, definite location of the lesion, is absent.

When the convulsion uniformly begins with a spasm in a distinct group of muscles or adjacent groups, trephining is a justifiable procedure. Any lesion which causes stimulation or compression of any area of the cerebral cortex may cause epilepsy. The various forms of meningitis, cysts, new growths, localized hemorrhage, arterio-venous aneurism, circumscribed encephalitis, and bone fragments are the principal sources of irritation. The large majority of these may be traced to some trauma, although there may be no external evidences of it. In addition to these cases, resulting from some local disease, we find a class which results directly from trauma. Wounds of the head are much more frequently followed by epilepsy than wounds of other parts of the body. This is especially noted where there has been injury and depression of the skull which has been expectantly treated. A cicatrix of the scalp may be the source of sufficient irritation to produce epilepsy, in which case its removal may effect a cure.

In cases where the location of the trauma can be definitely located, but in which the epileptic attack begins in another region, it is best to expose the focal area involved, and if no lesion is found the point of injury can then be trephined. It will frequently be practicable to expose both areas in the same opening. Some surgeons also believe in trephining at the point of the trauma or depression, even when the attacks are not focal but general in character. This is especially feasible where the trauma is located in some region the function of which has not as yet been determined. In those cases of focal epilepsy in which no lesion is found on exploring the brain, it is advised by some operators to ascertain by faradic stimulation the exact point from which analogous movements originate and to excise it. The resultant paralysis gradually disappears if the area removed has been small.

The results of operations for epilepsy have not been as encouraging as we had reasons to hope for. Starr explains this fact upon the theory that the disease of the brain can not always be eradicated, and that while we can break up adhesion and remove scar tissue, the healing process results in the formation of new adhesions and new scar tissue; the new conditions resulting in the return of an epilepsy which may for a time have been apparently cured. Many operators seek to prevent the adhesion of brain to meninges and bone by the interposition of a sheet of gold foil (Park). Abbe and others have used rubber tissue successfully.

The writer, not long since, operated upon a patient for the closure of a bone defect resulting from a former trephining, for epilepsy, in which several strips of rubber tissue had been interposed between the membranes. The individual strips were found completely surrounded by scar tissue and the ends of two had been transposed to the outer side of the skull. Had a large single piece been used instead, the scar tissue would undoubtedly have been less, and the adhesion to the periosteum more likely prevented.

Indiscriminate operating upon the brain for epilepsy should be discouraged, but, on the other hand, in recent cases of traumatic epilepsy with distinct focal symptoms, the operation is not only admissible but should be strongly advised. The earlier the operation after the development of epilepsy the better the prospects for cure.

The statistics concerning a procedure, the technique of which is being constantly improved, are of but little value, except when confirmatory in character. Operations for epilepsy during the past few years are more successful than those made in preceding years. So many cases have been reported in the various standard medical journals, by reputable surgeons, that there can be no question but that many cases have been permanently cured, and as it is yet impossible to differentiate, without operation, between the various pathologic lesions, and especially since the mortality of trephining is very small and the number of recoveries on the increase, the operation is surely a justifiable one in proper cases.

Hydrocephalus.—Tapping and draining the ventricles through a trephine opening has been carefully considered by Keen, who was the first to tap the ventricle in this country, and others (*Medical News*, 1888). The object of the procedure being to relieve symptoms due to marked intra-cranial pressure, its scope is necessarily very limited. It may result in the cure of a primary case of hydrocephalus, as in Broca's case ("Brain Surgery," Starr) and that of Parkin (*Lancet*, No. 3664). As a palliative procedure it may be occasionally indicated during the course of a cerebral tumor, etc. When indicated it should be performed through a small trephine opening placed one and one-fourth inches above and one and one-fourth inches behind the external auditory meatus. A trocar should be introduced and a capillary or tubular drain inserted.

Imbecility and microcephalus.—Operations for the relief of these conditions have been performed with some degree of success; serious symptoms have been relieved and in some cases cerebral development has apparently been stimulated. In cases of arrested

development as from the presence of clots, cysts or tumors, or where premature ossification of sutures has occurred, operation may improve the condition of the patient. It should never be performed in patients over 8 years of age or in those especially weak. The cases in which an operation is justified are very rare. A sufficient number of cases have now been subjected to operation to definitely settle the fact that most of these unfortunate patients are beyond the relief of surgical treatment. An occasional brilliant success will, however, keep the profession awake to its value and, even admitting the hopelessness of this class of cases and the dangers of the operations, it is certainly a proper procedure in a small select class of cases. While Park and others believe that if one in twenty are rescued it is to be advised, Senn and others believe the procedure unwarrantable. The operation—craniotomy or craniectomy—should be extensive but preferably on one side at a time. Park prefers elevating the scalp and pericranium at one time and on a subsequent day removing the strip of bone and corresponding periosteum; this plan shortens the operation and lessens the mortality from shock, etc.

Insanity.—In cases in which mania has followed a definite trauma, which can be positively located, and in which the symptoms do not improve within a reasonable time and under appropriate medical treatment, the patient should be subjected to an exploratory operation in the hope of finding some removable cause for the symptoms presented.

Trifacial neuralgia.—This subject is merely mentioned because the removal of a part of the Gasserian ganglion requires the opening of the calvarium. The uniformity with which sections of the distributing branches of this nerve are followed by a return of the symptoms had induced some operators to advocate the removal of the Gasserian ganglion as a primary operation. As yet, this is not a justifiable procedure, but as a secondary operation for the treatment of inveterate, recurring tic douloureux it is certainly warranted. The basal method of Rose has been superseded by the Krause-Hartley osteoplastic flap operation. The ganglion can be readily reached by an opening in the temporal region, which admits of elevation of the temporal lobe. It is impossible to remove the first division of the nerve without injuring the cavernous sinus and adjacent nerves. The other divisions can be divided and removal of much of the ganglion by divulsion readily effected. The procedure is very difficult and the mortality is large, but in severe cases it should be advised. Nerve union by regeneration has been prevented by Abbe by the interposition of a small piece of aseptic rubber tissue ("Annals Surgery," Vol. xxv).

Operation of trephining.—This operation formerly indicated the use of the trephine only, but by common custom it now includes opening the skull by any method. It is performed for the following purposes: 1, for the relief of compression from depressed bone, blood clot, abscess or serous effusion; 2, for relief of intra-cranial irritation; 3, for the removal of tumors; 4, for defective development; 5, for the removal of foreign bodies; 6, for the removal of the Gasserian ganglion; 7, for exploration.

In no class of operations is absolute asepsis so imperatively demanded as in brain surgery. The scalp should be prepared by shaving and thorough disinfection with soap and ether twenty-four hours before the operation, if possible, and the wearing in the meantime of a dressing of 1–2000 bichlorid solution. The parts should again be disinfected after anæsthesia has been produced. Chloroform preceded by the hyperdermic administration of a liberal dose of morphin should be preferred to ether, as it causes less cerebral stimulation and congestion. One of the essentials to successful operative work is the location of the important centers on the surface of the scalp. The fissures of Rolando and Sylvius should be carefully outlined on the surface of the scalp and the points should be indicated on the bones by the punctures of a drill. The fissure of Rolando is outlined by a line three and one-half inches long, drawn at an angle of 67 degrees to the median line, from a point 56 per cent. of the distance backward from the glabella (root of nose) to the inion (external occipital protuberance). For practical purposes the line begins one-half inch behind the point midway between the root of the nose and the occipital protuberance. This line, with the proper angle, can be readily outlined by folding a piece of paper so as to make an angle of 45 degrees, and then 22.5 degrees which, added together, makes the requisite angle of 67 degrees. The fissure of Sylvius is located in a line drawn from a point one and one-fourth inches behind the external angular process to a point three-fourths of an inch below the most prominent point of the parietal bone. For general purposes the line drawn from the external angular process to a point three-fourths of the distance backward from the root of the nose to the occipital protuberance will make the line of the Sylvian and the external occipito-parietal fissures, the fissure of Sylvius beginning one and one-fourth inches behind the external angular process. Reid's base line is drawn from the inferior margin of the orbit through the external auditory meatus. It is frequently utilized in locating the above-mentioned fissures. The incision should invariably be of the horse-shoe shape with the base downward toward the source of blood supply; the same to be modified as necessity may indicate. The opening in the skull can be made with a trephine and enlarged if necessary by the use of a rongeur forceps, a propelled circular saw or by the chisel and mallet. Each has its special indications and use, but the use of the chisel and mallet is undoubtedly increasing in favor. The special advantages of this method are the ready accessibility of the instruments; the method permits of making any shape and size of section; admits of preserving the nutrition of any sized section; is easy of performance and is a safe method, being practically free from danger. The dura should be opened at least one-fourth inch from the edge of the bone so as to admit of suturing latter. Hemorrhage from the diploe can be controlled by crushing, by plugging with decalcified bone or with Horsley's aseptic wax. Hemorrhage of the pia mater can be controlled by clamps, ligature of vessels, or pressure with gauze compresses. Park advocates the use of 5 per cent. solution of antipyrin. The brain can be safely explored with the exploring trocar. Incisions in the brain should be made with the scalpel. Cavities should be filled by gauze packing. Adherence of the brain to the dura or of dura to superficial scar can be prevented, it is claimed, by the intervention of gold foil, as advised by Beech of Boston, or by the use of rubber tissue, as practiced by Abbe, or of a thin celluloid sheet, as employed by McCosh ("Annals Surgery," Vol. xxii).

The opening in the skull can be closed by various

methods. A trephine opening can be closed with the removed button properly supported, or by the implantation of small fragments of bone, or bone saw-dust, or the outer table of another area of the skull can be loosened, but left attached to the periosteum and transposed to cover the defect (Nicoladoni; "Ann. Surgery," Vol. xxiii). Bone chips can be obtained by the use of the chisel or gouge on the adjacent sound bone, and should be placed on the dura, as a mosaic, with the outer side downward. These plans are known as autoplasty. By heteroplasty is meant the insertion of a piece of foreign material, as celluloid or aluminum. All of these methods are valuable and the circumstances will necessitate the use of each at times. In the replacing of large and numerous fragments after extensive fractures of the skull I have repeatedly made a satisfactory support, by making a frame work of catgut strands, which are placed in the periosteum loosely, forming a mesh not unlike loose darning. Undue pressure and unevenness can thus be readily prevented. The indications and conditions of each case must decide the question as to the use of drainage. Where there is doubt it is best to leave the wound open or provide for the free exit of blood, etc., by drainage.

1008 Fisher Building.

ORIGINAL ARTICLES.

OBSTRUCTION OF THE BOWELS.

Presented to the Medical Association of Missouri, May 20, 1897.

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"Obstruction of the bowels" is a technical phrase which implies a mechanical obstacle to the onflow of the intestinal contents. Its causes are various and the obstruction may be complete or partial, acute or chronic. It may occur at any portion of the intestinal tract from the duodenum to the rectum. It may be due to conditions that are congenital or may be acquired. But whatever may be the character of the obstruction the one striking fact dominates all considerations relating to treatment—it is a mechanical obstacle. A simple reference to the schedule of causes, revealed by postmortems, establishes this fact and demonstrates as well the utter uselessness of medical measures.

It is impossible here to more than outline the symptoms, diagnosis and treatment of obstruction of the bowels, acute and chronic. It is neessary to deal with these two groups separately.

In the classification of intestinal obstruction it is necessary to take into consideration both the pathologic anatomy and clinical aspects of the subject and study the relations of one to the other.

A careful collection of a large number of cases examined postmortem has shown that one of the following causes is responsible, with rare exceptions, for every case of obstruction with which we meet: 1, internal hernia; 2, twists (volvulus); 3, bands of some kind; 4, fecal impaction; 5, mechanical pressure of tumors; 6, stricture; 7, contractures due to matting together of intestinal coils from peritoneal and cancerous diseases; 8, intussusception; 9, gall stones; 10, enteroliths; 11, foreign bodies. A more practical classification, however, is that in which all cases are divided into acute and chronic.

A study of the pathology in connection with the clinical history reveals a striking relationship between the causes and the group of symptoms which are associated with them. Thus, of the causes leading to acute obstruction we have: 1, internal hernia: 2, twists (volvulus); 3, bands; 4, intussusception; 5, gall stones. Of the leading causes of chronic obstruction we have: 1, fecal impaction; 2, mechanical pressure of tumors; 3, stricture; 4, contractures; 5, intussusception, which may be and is sometimes chronic.

So constant is the relationship between primarily acute obstruction and the causes grouped above that we can say that any given case is due to one of these, and the same may be said of primarily chronic cases.

Symptoms.—In acute cases these come on suddenly in a previously healthy individual and are striking and characteristic. The attack is sudden and acute. Pain is paroxysmal, central and fixed. Vomiting sets in early, first of the contents of the stomach, then of the duodenum, then of the small intestines and rapidly becomes fecal. The patient becomes faint, pale and markedly collapsed; constipation is absolute, not even flatus escaping from the bowels. Distention of the abdomen rapidly takes place and distended coils of intestines may often be both seen and felt. The urine may be scanty or even suppressed.

It will be seen that these are the symptoms of acute strangulated hernia. And why not? There is the same interruption to the onflow of the intestinal contents, the same obstruction to the blood current; the same disturbing and depressing effect on the nervous system, the same violent peristaltic action in the endeavor to overcome the obstruction and push on the obstructed contents, the same paroxysmal pains and eventually the same fatal result from precisely the same causes.

When, therefore, we are confronted with a case presenting such a group of symptoms there can be no doubt as to the diagnosis. A dire disaster has befallen the patient. Death confronts him and only the coolness, the courage and skill of the surgeon can rescue him from its grasp.

The bowels do not move. Shall we give purgatives? Already the bowel is making frantic efforts to force the blockade. Shall we stimulate it to more furious efforts to accomplish the impossible? No. It would be gross malpractice.

The patient suffers great pain. Shall we give opium? If it be used only as an adjuvant to annul pain, to relieve collapse, to restore the action of the kidneys, if it is administered for these purposes only while the surgeon prepares to relieve the strangulation, yes. If it is given with any curative purpose, then emphatically, no. We do but invite euthanasia. The patient relieved of his suffering is deluded with the idea that he is doing well, the doctor no longer assailed by the cries of the patient, too often hesitates and the golden moments slip by, during which the patient might be rescued from an otherwise inevitable doom. When the diagnosis is once made every hour of delay is compromising his safety. The bowel is damaged, peritonitis sets in, collapse ensues and the patient dies in spite of the delayed operation.

When the diagnosis is made celiotomy is the only thing consistent with that condition. If there be any doubt an exploratory celiotomy should be done to remove that doubt.

It is scarcely worth the time to discuss certain measures that are advised in these cases. Of what use is

irrigation or lavage of the stomach except for the purpose of putting the patient in a better condition for operation or distention of the colon with fluids, except for the same purpose. Tubage of the colon is a delusion; manual exploration of the rectum is a bit of brutal manipulation rarely justifiable. Taxis and massage, though lauded by that master in surgery, Jonathon Hutchinson, is useless and dangerous. Compression of the abdomen is a waste of time. None of these are curative and they but serve to divert the attention from the one thing that can relieve the difficulty.

I have been thus earnest in advocating early operation in these cases because I have seen them treated by the exhibition of the most powerful purgatives, by the administration of a quarter of a pound of liquid mercury, by delay extending over days, until the onset of peritonitis, the moist clammy skin, the hiccough, the stercoraceous vomiting, the quickened pulse, proclaim any operation useless.

A few words must be said in regard to the differential diagnosis and treatment of acute intussusception, for while it presents the usual symptoms of obstructions of the bowels, there are certain symptoms peculiar to this accident. By the term intussusception we mean the inversion or prolapse of a portion of the bowel into the lumen of the part immediately adjoining. No portion of the bowel is exempt from this accident, though the relative frequency varies in different portions of the bowel. In the inversion of the finger of a glove we have an exact representation of what takes place in intussusception, except that in the inversion of the bowel the mesentery is carried in with the intussusceptum.

The rôle played by the mesentery is important. As the invagination extends the traction upon it increases, the tumor of which it forms a part is rendered somewhat crescentic, the pressure on the lumen of the bowel is increased and the facility of its reduction greatly interfered with. The most frequent variety is the ileocecal, the next the enteric, then the colic, while the ileocolic is the least frequent.

It is well to remember that intussusceptions occur in the dying. But as they give rise to no symptoms during life, indeed are discovered only postmortem, they do not concern the surgeon. The absence of all indications of congestion or inflammatory action and the facility with which they can be reduced render the diagnosis postmortem easy. In intussusception the constipation is not so absolute except in the very acute cases. A certain amount of diarrhea at the onset is frequent in a large proportion of the cases, constipation becoming complete toward the close of the case.

In consequence of the great engorgement of the invaginated portion of the bowel (the intussusceptum) a certain amount of blood is found in the stools. Tenesmus is a striking and usually an early symptom and the occurrence of marked tenesmus with bloody mucus in connection with other symptoms of obstruction is almost pathognomonic. It is often mistaken for dysentery. Vomiting is usually not so marked or distressing a symptom in intussusception. The presence of a tumor formed by the invaginated bowel can in nearly 50 per cent. of the cases, be felt. It can more frequently be recognized in children than in adults and is somewhat sausage-shaped. It is most often to be felt over the transverse and descending colon. When it can be found it is a great aid in diagnosis.

In the ultra acute cases death follows within twenty-four to forty-eight hours; they are always fatal, in fact. Fortunately the ultra acute cases are rare.

As to the treatment, I have succeeded in relieving quite a number of cases by distending the lower bowel with air or gas. I believe that an early resort to this method, before adhesions between the different layers of peritoneum have taken place, will often prove successful. Failing in this, an early resort to celiotomy is demanded to reduce the invagination. This is much more readily accomplished before the great engorgement of the invaginated portion has taken place and peritonitis with adhesions of the peritonal folds has set in.

The reduction of the invagination is best accomplished by a process of pushing the intussusceptum out from below while slight traction is made from above. A direct pull on the invaginated portion of the bowel is apt to lead to tearing of its walls, and the danger is the greater the longer the invagination continues. Obstruction in some of its forms is by no means infrequent nor is the diagnosis always easy. In fact, judging from the injudicious treatment adopted we must believe that the true condition is not recognized or at least not appreciated in many cases. Postmortem investigations have thrown a flood of light on these cases and every fairly-well posted practitioner should be familiar with their pathology.

While it would be desirable to make a differential diagnosis as to the clinical cause in every case, it can not be expected to do more than approximate the special cause in a given case. Nor should it influence the course to be pursued. The suddenness with which appendicitis develops, the severity of the pain, the tendency to collapse and the occasional vomiting might mislead the practitioner and lead to some confusion as to the diagnosis as between obstruction and that disease. But the consideration of a few points of difference ought to clear up the diagnosis.

Appendicitis is an inflammatory affection *ab initio*. In obstruction, inflammation is a secondary affair.

The peritoneal irritation developed in appendicitis often causes great tenderness all over the abdomen, most marked, however, over the region of the appendix, and later receding until it is limited to that region.

Pressure over the abdomen in obstruction often adds to the comfort of the patient.

The pain in appendicitis is more continuous and localized. In obstruction it is central and paroxysmal. Vomiting in appendicitis is by no means constant. In obstruction it is rarely absent. In short, the arrest of peristalsis resulting from inflammatory conditions leading to a quasi obstruction has no place in this discussion.

Internal hernia must be reduced, volvulus must be untwisted, bands must be divided, etc.

Chronic obstruction of the bowels is marked by symptoms quite distinct from those of the acute. It will be found generally that there is a history of long standing trouble of the bowels, some colicky pains, difficulty of getting the bowels to move, and there may be blood or mucus in the stools and a change in the form and character of the passage. At one time diarrhea may be present, at another constipation, etc. These symptoms gradually increase in severity until the patient dies from exhaustion, or it may be acute symptoms supervene upon the chronic and the patient dies from collapse or peritonitis. The history is

one of chronic obstruction and though the patient may have, when seen, tympanitic distention, paroxysmal pain, visible peristalsis, vomiting, hiccough, etc., the cause will be found to be one of those I have enumerated, viz.: fecal impaction, pressure of a tumor, stricture of the bowel or contractions.

The most frequent of these is stricture of the large or small intestine. About 60 per cent. of the cases of chronic obstruction from all causes, examined post-mortem, have been found to be due to this cause, only 25 per cent. having been found in the small intestines, showing an immense preponderance in favor of the large bowel. In fact, it may be said that stricture is the cause of obstruction in the large bowel while "contractions" are the almost invariable cause of obstruction of the small. Strictures are, with few exceptions, cancerous and epithelial in character.

In a table of ninety-eight cases, compiled by Treves, the relative frequency of the different portions of the large bowel involved was as follows: Rectum and sigmoid flexure, 58; descending colon, 11; splenic flexure, 7; transverse colon, 7; hepatic flexure, 9; ascending colon, 2; cecum, 4.

The symptoms of stricture are alternating constipation and diarrhea, frequent mixture of blood and mucus with the stools and pain in defecation. When low down in the rectum the tumor can be felt with the finger, a means of diagnosis that should never be omitted. When in other portions of the colon it may often be felt through the abdominal parietes. The abdomen may be distended and, when distended, is most marked in the lumbar and epigastric region, in short, in the line of the large bowel. Large coils of distended bowel with visible peristalsis are often seen, the result of the hypertrophy of the muscular coat, brought on by the increased peristalsis, extending over a long period of time, to overcome the resistance offered to the onflow of the intestinal contents.

The treatment of stricture of the colon depends somewhat on its location. If it be the rectum, extirpation of the entire growth at an early period is the remedy. If higher in the bowel resection in favorable cases, and when this measure is impracticable, colotomy at a point above the stricture is indicated.

"Contractions," so named by Fagge, are a cause of obstruction in the small bowel and due to the matting together of the coils of the intestines from peritoneal and cancerous disease. In these cases the normal peristaltic action of the bowel is interfered with by the adhesions of the adjacent coils, by the bending and doubling of the bowel upon itself, thus interfering with the passage of its contents. This leads to the griping colicky pain often associated with the sick stomach coming on an hour or more after the ingestion of food and during the passage of the chyme through the obstructed portion of the bowel. Some distention may occur during the attack and, if so, is central and hypogastric; in other words, in the region occupied by the small intestines. The intestines will be seen writhing and coiling, a gurgling produced by the movement of the gases, and distinct peristaltic movements are perceived. With the escape of the contents through the obstructed portion of the bowel the patient is relieved of pain and discomfort until after the next meal, when the same symptoms recur. As there is no trouble with the large bowel the actions are normal and painless.

Something like 30 per cent. of the cases of chronic obstruction are due to this cause. The treatment must be plainly palliative, consisting in a careful regulation of the diet and the administration of mild laxatives. Should the symptoms become more urgent and the suffering great, enterotomy should be done and an artificial anus established.

As regards the obstruction caused by tumors, the treatment resolves itself into the treatment of the tumors themselves, though colotomy may be required in certain cases.

Last but not least in importance are those cases of obstruction due to the accumulation of feces. The importance of examining the rectum in all cases of obstruction of the bowels is emphasized in these cases. A source of error in the diagnosis in this condition is the fact that a quasi diarrhea may exist. While the bowel is loaded with fecal matter, a channel may be furrowed by the side of the mass, by which the thinner contents of the bowel higher up make their way and escape from the anus. It is not a rare thing to find that the practitioner has administered anodynes and astringents to control this supposed diarrhea.

The foundation of this condition is an habitual constipation brought on usually by sedentary habits, neglect of the individual to heed the desire to act, a gradual diminution of the reflex excitability of the spinal centers and such a stretching of the bowel that it fails to take cognizance of the presence of fecal matter.

This chronic constipation may lead to that condition known as "ileus paralyticus," in which a considerable portion of the bowel may become incapable of peristaltic action and absolute obstruction occurs. A mass of fecal matter accumulates in this section of the bowel and the portion above is incapable of exercising sufficient force to push it along. With time the accumulation becomes harder and harder, the bowel below has a tendency to contract and adds to the difficulty of emptying it. The continued accumulation of fecal matter distends the bowel still more until rupture may take place. Ulcerations are frequent and peritonitis may develop. Like all other forms of chronic obstruction the symptoms are likely to become aggravated and eventually to become acute.

The length of time during which the bowel may remained blocked is in some cases astounding. Dr. Thos. Strong reports a case in which no evacuation took place for eight and a half months. The extent to which the colon may become distended is very great. In a case which I saw some years ago, a prominent business man of this city, the whole colon from the cecum to the sigmoid flexure was filled and it could be felt as a large roll movable laterally, swinging upon the meso-colon, and evidently several inches in diameter. The presence of such a mass in the large bowel is a diagnostic feature of great value. In the descending colon and sigmoid flexure this accumulation may be divided into scybalous masses, forming what has been compared to a large rosary.

Would any one regard the use of purgatives as a rational method of treatment in these cases? I think not. It would not only be useless but as illogical as an attempt to force out a cork from a bottle by explosives from within that might more readily be extracted by a corkscrew.

The treatment of these cases should consist in the repeated and copious enemata of warm water, with or without the addition of other ingredients such as tur-

pentine, soap, oil, etc. To be effective the enemata should be introduced slowly with the patient in the knee-chest position, so that the fluid may traverse the whole length of the colon. Massage may be resorted to advantageously as well.

Cases occur where none of these measures prove effective in breaking down and dislodging these fecal masses and the symptoms of obstruction persist. The surgeon is then left the alternative of opening the abdomen and, by direct manipulation of the bowel, compressing and pushing on the accumulation to a portion of the intestine still capable of peristaltic action.

Should the existence of ulceration or peritonitis or other conditions forbid such a course, colotomy would be advisable, removing the fecal matter through the opening and subsequently stitching it up or establishing an artificial anus as might seem best.

In conclusion I would submit the following propositions:

1. Purgatives are absolutely contraindicated in all cases of acute obstruction, and are of very limited, exceptional and temporary advantage in chronic cases.

2. The administration of opium as a remedial agent is to be strongly condemned. It literally "smoothes the pathway to the grave," lulls to sleep and lures to death.

3. Obstructions of the bowels are strictly surgical and demand surgical measures for their relief.

NOTE.—In the preparation of this paper I have been indebted to various sources for valuable suggestions, especially to the essay of Mr. Frederick Treves of London on "Intestinal Obstruction."

3101 Pine Street.

RAILWAY SPINE AND LITIGATION SYMPTOMS.

Presented in the Fourth Annual Meeting of the American Academy of Railway Surgeons at Chicago, Ill., Oct. 6-8, 1897.

BY W. W. GRANT, M.D.

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From a certain class of spinal symptoms and nervous manifestations following and believed to be typical of railway accidents, is evolved the use of the term "railway spine." The pathologic lesion is not essentially different from similar lesions occurring under other circumstances and conditions, and the term may not be a happy one.

The element of fear enters largely into these histories. There is a distinct appeal to the mental and emotional, and with a certain similarity in clinical histories and results they have been, and are by many at least, believed to be peculiar to railway collisions; so we are justified, as railway surgeons, lawyers and neurologists, in giving them special consideration. We are, perhaps, familiar with those interesting cases following collisions, called often "spinal concussion," in which there is no evidence of a pathologic or anatomic lesion, by any clinical or scientific tests at our command, but in which the patient complains of persistent pain at some point of the spinal column, attended with various nervous manifestations due to the "shock." These cases never recover until there is a definite financial disposition of them. To such cases, an English jurist has applied the term "litigation symptoms."

The teaching of Mr. Erichsen in applying the term "concussion" to all the structures of the spine is too indefinite in history and pathology, and as it does not represent the best thought and opinion of our time, can not be accepted. Concussion of the cord is definite and satisfactory. The cord is so well protected by its environment that concussion is very rare, though believed to be common from railway collision.

Actual lesion of the cord from injury is usually fatal, and when it does happen it is usually attended with direct and manifest injury to some or all of the overlying structures. Meningitis from concussion is equally rare and usually fatal, from whatever cause. It is not with these and the unmistakable injuries of the spine that surgeons, neurologists, railway attorneys and corporations, have the most trouble. When the surgeon is confident of a serious lesion, his plain duty to both patient and corporation will often prevent lawsuits. Whether his conclusion is just will depend very much upon the character and completeness of his examination. We can not rely too confidently upon our instruments of scientific precision. The dynamometer, esthesiometer, audiometer, ophthalmoscope, battery, etc., can be weakened by elements of fraud and deception. Mr. Page says plainly that "nothing has struck us as more extraordinary in our experience of railway injuries than that in the examination of them all common sense, the best and surest diagnostic guide, should be so often abandoned and reliance should be rather placed on methods of examination which are of scientific value only when every suspicion of exaggeration or imposture can be put away."

Only a few years ago it was said "no electric test has yet been found which is not rather a test of the credulity of him who trusts it." There is much truth in the statement. The reactions of degeneracy can be proven and the test is often of much value, but only in the hands of a scientific expert, who is equally familiar with the nervous and muscular conditions sought to be elucidated. The manner of the examination is often defective and unwise. I have known these examinations to be conducted in such a way as to suggest to the patient symptoms and ideas that he had not thought of before. An intelligent, shrewd or dishonest individual will utilize them to his own advantage and sometimes to the annoyance of the medical witness and expert.

Not only a full account of the nature of the accident, but the history of the patient prior and subsequent to it is of the greatest importance. The previous condition of health, the vocation, moral status, mental bias, the conduct and character are legitimate matters of surgical inquiry and often necessary to an intelligent and satisfactory explanation of the case.

Erichsen in his work on spinal concussion uses this language: "An extensive experience in railway compensation cases will probably impress you more with the ingenuity than with the honesty of mankind. A history of deception, practiced on railway companies by alleged sufferers from accidents on their lines, would form a dark spot on the morality of the present generation." Yet, the writings of this distinguished surgeon gave more character to such claims than any other single agency in this generation, though he did not so intend. I believe the statement of Mr. Page true that "molecular disturbance is not necessarily molecular disintegration or pathologic change, and there is no evidence to show that molecular disturbance is, in itself, a grave condition or likely to have evil results." Otherwise it would be something fearfu

to contemplate the menace to the individual and to the employer from the effects of a jar to the nervous system.

We now know that the serious results from railway collisions are manifested at a very early date after the accident; and in those cases where the symptoms were insignificant or so slight as not to attract the special attention even of the patient and yet at a more remote date, weeks, months or years, serious symptoms present themselves, it will generally, I believe, be found that some constitutional infection, such as syphilis or tuberculosis, is the chief factor in the case. And this is as true of the nervous as of the bony and glandular systems.

We hear now of traumatic hysteria; of the neurosis resulting from shock or injury to the nervous system. Obersteiner has recently said, "where we had hoped to establish a firm anatomic basis, there was only an undemonstrable functional injury of the nervous system, but it is going too far to regard all cases formerly considered as concussions of brain and spinal cord, as purely functional." This is, no doubt, true. It is just as true that most of the spinal cases, so commonly called concussions, are not concussions at all; but if any injury really exists, it is contusion or muscular or ligamentous strain. Many of these cases do not recover promptly, but require considerable rest of the parts. They will recover perfectly, however, unless the patient is imbued with the idea that serious results are quite certain to follow "concussion of the spine" from railway accidents.

Under former professional teaching, the opinion, professional and lay, was quite general that the slighter injuries, called usually concussion of the spine from railway collisions, frequently developed at a later period, serious symptoms often with unfortunate results. This is true only exceptionally. But with real concussion of the cord there are generally other unmistakable evidences of injury, and we are enabled to form an intelligent and more satisfactory opinion as to the future.

Concussion of the cord being the exception and not the rule from railway collisions, we ought to leave the unfortunate errors of the past. It is desirable, as soon as possible, to establish the results of railway injuries to the spine upon a pathologic basis. Deferred shock, of which we hear something, is like some of the manifestations of hysteria, emotional or mental. Those cases with slight complaint or manifestations of injury following railway collisions do not, as a rule, at a late day assume a grave form, but they are apt to become litigation cases.

Our experience with such cases, out and in courts of justice, may be commonplace yet beneficial, and I will give one experience:

Three years ago a Denver woman, aged 34, milliner, was on a Rock Island Pullman car at the time of a collision in Kansas. The immediate attendance of railway officials and a local surgeon discovered no passenger injured or complaining. When the lady reached Denver next day, she sent for her physician, who found her with a slight cold only and did not return. In a day or two the company requested me to visit her and report. Recording the result, I found pulse, temperature and pupils normal and no disturbance of motion or sensation general or special, reflexes normal, but when bending her head and shoulders forward, also on pressure, she complained of pain in the upper dorsal region, but there was no discoloration or evidence of a blow. At time of collision she was asleep, but says her head struck against the headboard, partially doubling her up (which with head toward engine is not improbable). There was total absence of contusion anywhere, but such a position would favor straining or laceration of spinal muscles and ligaments. She came to Colorado eleven years before for supposed lung trouble but had been well ever since. I could discover only a slight cold, resulting probably from delay and absence of fire in a cold season. I gave her a favorable opinion, but from her manner I felt certain she would demand considerable money, so made two or three visits and then had her visit me at my office occasionally for several months, in order to watch developments. To be well prepared, a reputable nerve specialist examined the case at this time, applying all the usual scientific tests and finding no evidence whatever of disease. He asked if she observed any peculiar effects from riding in street cars and, of course she answered "yes." Something, I believe, like fear possessed her. She had never before been affected this way, and but for the suggestion of the examiner, I dare say would never have found it out. She demanded $2000 from the company, was offered $500, brought suit for $15,000 and it was tried in the Federal court two years ago. Notwithstanding dry cupping and rest for two months following the collision, the spinal pain never ceased and she complained subsequently of headache and sleeplessness at times. The day before the trial she was carefully examined again by the neurologist and myself, and pronounced perfectly healthy. She was so well in her pelvic organs as not even to suggest curetting nor a thought of exploratory section. No symptom is of less value as indicating disease of the cord than spinal pain, yet it is ever present and often with varied and ill-defined nervous manifestations.

A year after the accident she testifies that she is not yet able to conduct her business. I testified that she was as healthy a woman probably as there was in Denver; that if suffering, it was from litigation symptoms and from these would not recover until the case was finally settled; that somtimes such condition of the patient was malingering for the benefit of the money consideration involved. With some claimants the feeling was honestly entertained that they were suffering from the effects of injury, and though they were generally mistaken in this, yet there would be no confession of recovery until the case was definitely settled. There can be no doubt that early settlement in undoubted injury favors earlier recovery.

The neurologist testified that this patient, in his opinion, was not suffering from any disease of the nervous system whatever, but when asked on cross examination to give an opinion on the claimant's own statement of her condition, he said, "she might have hysteria." "And is not hysteria a serious disease" was instantly asked and he replied, "frequently, or sometimes, it is." This statement and that of her own physician, that he could find nothing the matter unless it was hysteria, was absolutely the only medical testimony given in her favor, and the only excuse the jury used, if indeed it needed any, for rendering a verdict of $700 in her favor.

Hysteria as a neurosis, or as an expression of disorder of the generative system, is not a serious condition, and I have been often surprised that even medical experts would, upon the witness stand, use the same language and manner before an ordinary jury,

utterly ignorant of the subject, that might be justified before a body of scientific men. This discrimination is an absolute necessity, in the dispensation of justice, to all parties concerned. It is doubtful if a case of importance was ever tried without some medical witness saying something that was unjust to himself and damaging to his cause, and not infrequently because he wished to be supremely scientific and eminently impartial to a body of men incapable of appreciating his meaning.

I meet this woman frequently on the streets of Denver and I have no doubt of her excellent health and her attendance on business.

Within the last year, a Massachusetts lady was on one of the principal trains entering Colorado, when it collided with a snow bank, causing some delay but, on immediate investigation, no injury to any one. Some time after suit was brought against the road by the lady for deafness due to the collision, and the jury gave her a verdict of over $2000. My attention was subsequently called to the case, and the railway attorney told me that he accepted the statement of the aurist who attended her only because "it seemed fair." He said no investigation was made as to her previous history, but that her character was a "little shady," and I ventured the opinion that her statement as to her ear trouble probably was also. If an investigation of her past history in Massachusetts had been made, it is not improbable that satisfactory evidence of previous ear trouble could have been obtained.

The medico-legal relations of these railway cases are of peculiar interest to the railway surgeon and the medical expert. The surgical treatment of actual railway injuries is governed by the same general rules and principles which prevail under other circumstances, but always with due regard to the peculiarities of environment. "With the character and manner of conducting these claims we have nothing to do;" but it is as much our duty to understand, if possible, and to appreciate the motives and conduct of these claim patients, as it is for the lawyer to prove them. Generally when the clinical history and statements are at variance with those which we should most reasonably expect under ordinary circumstances, we are justified in suspecting ulterior motives, and these are usually of a financial character.

The hope and anticipation of reward consciously, and unconsciously perhaps, influences the course and conduct of individuals in different relations and positions and this is especially true when compensation for injury and lost time awaits those who are injured in the service of corporations, of which railways afford the most conspicuous if not the most peculiar example.

It is a matter of common observation that the class of patients under consideration are prone to exaggerate every symptom and fear, and if they are silent or their manner unusual upon the statement by the surgeon of a favorable and early recovery, it is safe to assume that a financial problem is under consideration.

How best to meet the actual and varied manifestations of railway injuries and their consequences, near and remote; to separate the imaginary from the real, the fraudulent from the honest claimant, and to properly estimate self-interest and the varied prejudices that enter into consideration *nolens volens* in the endeavor to reach a just solution, is a problem that appeals to the best thought, feeling and judgment of every interested party, and the unremitting labor of a learned profession.

DISCUSSION.

Dr. J. P. LORD of Omaha—This subject, which so much concerns railway surgeons, has been discussed from the beginning of our meetings. It is a question that will be with us just as long as we have to deal with human nature. Who has not been called in for no other reason than to cultivate the good graces of the doctor, and consult him for ulterior motives? Who has not been called in also by all kinds of designing people who have their particular axes to grind? This spirit pervades all classes of society. A man who draws a $5 a week indemnity from a local lodge, perhaps on account of indiscretion, or because of a desire to get a day off and at the same time to help to bear the expense of this lay off, calls in a physician. What he wants is the doctor's certificate of his illness more than a prescription. Perhaps the prescription is never filled. So we might add to the list of people who will deceive the doctor if they can. It is difficult to deal satisfactorily with this question, as these people will always be with us. We can not reconstruct human nature: we can not make juries any different, but we can make ourselves wiser in handling these people and doing what we can toward conducting our case successfully and protecting our employers; so that while it is a question of scientific interest, yet it is one that will never be disposed of. For years it has been an interesting study to me to know why doctors could not handle a certain class of neurasthenics, people who would be seen in spite of the doctor, and who could not be cured by anybody but those who resorted to deceptive methods, and these deceptive methods seem to take the place of the green plaster in railway injury cases.

Dr. THOMAS B. LACEY of Council Bluffs—I presume that in order to properly qualify a surgeon to make a good witness he must be a man of experience on the witness stand as well as in his professional work: and still there are none of us who are willing to pose in the light of professional witnesses, for I believe, even in a surgical way, they will not have weight with a jury. We gain our experience on the witness stand by testifying, and must be willing to accept the name of professional witnesses if called sufficiently often to bring it about. But we should guard ourselves as much as possible in making admissions that we do not mean. The neurologist, on the witness stand, probably stated that he did not think there was anything the matter with the lady in question, but the lawyer succeeded in having him admit that she might have hysteria. There is a lesson in that point. These admissions weaken the case, and it is because of our little experience as witnesses that we are called upon to make admissions that we can safely do among our fellows, but not to a jury who have no conception of what we are willing to have understood by those admissions. As a general rule, it is a good safeguard, after you have examined your claimant and found that in your opinion there is nothing the matter with him, to so state it on the witness stand, and your opinion should be persisted in without any admissions or equivocations.

Dr. W. L. SMITH of Streator, Ill.—The best time to interview an injured person and get a truthful statement is at the time of the injury. We will get more truth then than we will after a shyster lawyer steps in. Get the statement and be ready to make your examination carefully and thoroughly, and state your opinion as to your findings, even though judge or jury be against you.

Dr. FRED J. HODGES of Anderson, Ind.—Every man on the witness stand should be honest with himself and in his opinions, and if he believes that there is nothing the matter with a case, and yet feels in his own heart that there is a possibility of it, he will still further bring expert testimony into contempt if he does not admit such a possibility of injury. If he is experienced as a witness his answer to that question will be something like this, that it is possible but not at all probable, and in that way he is honest without doing the case harm. I do not believe any member of this Academy would wish to be understood as saying that because a man is employed by a railroad and is called by that railroad to testify, that he should lose his scientific spirit and deny a possibility when one exists.

Dr. Hay, who was professor of neurology in the Northwestern University Medical School, used to say to his class, "there are three things every medical witness must understand and be guided by. In the first place, never be afraid to say, 'I don't know.' If you do not know, say so. You will save yourself trouble and gain strength for your case. In the second place, never acknowledge authority for anything. You are called upon to tell what you know, not what anybody else supposes or knows. In the third place, be strictly honest and scientific all the time." If any medical witness will be governed by these three propositions I think there will be less reproach connected with the term "expert witness," and that the truth will not suffer.

MUTUAL RELATIONS OF THE RAILWAY SURGEON AND THE NEUROLOGIST.

Presented in the Fourth Annual Meeting of the American Academy of Railway Surgeons, held at Chicago, Oct. 6-8, 1897.

BY J. T. ESKRIDGE, M.D.

NEUROLOGIST TO ST. LUKE'S HOSPITAL AND PRESIDENT OF THE STATE BOARD OF COMMISSIONERS FOR THE INSANE ASYLUM.

DENVER, COLO.

That the general surgeon and the neurologist should work together in the advancement of cerebral and spinal surgery is accepted by the best men of the profession. That the professional relations of the railway surgeon and of the neurologist should be more comprehensive and extend to nearly all cases of railway injury has not, to my knowledge, been generally recognized by the chief surgeons of the great railway systems.

A brief abstract from the reports of two cases of alleged railway injury will aid in bringing this subject before the Association for discussion:

Case 1.—J. R., in 1889, while climbing down from his upper berth in a Pullman sleeping car, was thrown to the opposite side of the car by some accident which caused the engine and one or two cars to jump the track. He was not rendered unconscious nor did he appear to be greatly injured. He told some fellow passengers and acquaintances who were on the car that his body felt sore and that he seemed dizzy. He got off the car and walked around the train for some time. On reaching Denver a day or two later he consulted one of the surgeons of the railroad company. The patient complained then of nervousness, sleeplessness, a headache and general discomfort in various portions of the body. On the surgeon finding no positive evidences of injury he soon dismissed the case as one of minor importance. The man became a semi-invalid, refused to work, as he said he was unable to do so on account of pain in his back. Six months after the accident he suffered from an attack of typhoid fever. After recovering from the fever he seemed to be in about the same condition of health as that which had preceded the typhoid attack. He consulted numerous physicians, and finally, on finding the right leg below the knee much smaller than the left, he began to limp and complain of pain in the leg. Two years after the accident a damage suit was brought against the railroad company.

At this time I was asked by the attorney for the plaintiff to examine the man. He walked with the assistance of a cane and exhibited a decided halt in his gait. Most of his former symptoms of nervousness had disappeared and he complained mainly of pain in the right leg and weakness of the muscles below the knee. The circumference of the right leg over the largest portion of the calf was nearly two inches less than that of the left. The tibialis anticus and peroneus group of muscles were the seat of the greatest amount of atrophy, but the calf muscles presented considerable wasting. All the affected muscles showed a decided lessening of irritability to the faradic current, and the tibialis anticus and peroneus longus presented the reactions of degeneration.

In short, all evidences pointed to poliomyelitis affecting the muscles of the right leg below the knee. All other symptoms that he then complained of were either feigned or greatly exaggerated. He positively stated that the right leg was perfectly normal before his fall in the Pullman car. He further insisted that the wasting had begun about a year before I saw him and that it had been steadily increasing. The electric changes were too pronounced for an ordinary case of progressive muscular atrophy, even of the peroneal type. It is well known, however, that we may have a focal poliomyelitis of traumatic origin, and from this gradual wasting of the muscles may ensue and result in a form of muscular atrophy of spinal origin. The only way to determine this in the case under consideration was by watching the case for a year or more. A gradual increase of the trouble meant a progressive muscular atrophy which would ultimately prove fatal. I reported the results of my examination, together with my conclusions to the plaintiff's attorney. To my surprise, the lawyer did not hesitate to advocate the the gravest possible view of the man's condition. I argued with him that I could not say the trouble did not antedate the railroad accident many years, and that we had to depend upon the veracity of the patient, which was not good, in excluding a poliomyelitis dating from childhood.

The case was tried. I simply stated what I had found. The attorney for the plaintifi very shrewdly asked me no questions, further than to lead up to the fact that if the trouble had been progressive during the past year, as the patient stated, it would result in total disability and finally in death.

The attorney for the defense was an able lawyer, but ignorant of medicine. His efforts were principally directed toward showing that there was no spinal cord lesion. The physicians called by the defense had to admit there was some organic lesion. Again, to my chagrin, no questions were framed so that I could give my opinion in regard to the probable nature of the case. The man was awarded several thousand dollars damages. Before the case came to trial, as well as during the time of its progress, I learned that the man did not hesitate to pervert the truth when it suited his convenience, hence I suspected that the spinal trouble dated from childhood. Coloring was given to this view by the man never having complained of the right leg more than the left until muscular wasting was detected by a physician some time after the railroad accident. It evidently occurred to the man at the time the wasting was found by the unsuspecting physician that he had something definite on which to base a suit for damages, and he ceased to lay stress on his other troubles, mainly complaining of his leg.

I had an opportunity to study this case some two years after damages had been awarded the plaintiff. There had been no further wasting and the electric reactions remained the same as at the time of my first examination. I subsequently learned from one of the man's friends that he had been paralyzed during childhood and confined to his bed for some time.

The point on which I wish to lay stress is this: If a careful neurologic examination had been made at the time the man first consulted the surgeon for the railway, the poliomyelitis would have been detected and the company, in all probability, would not have been sued. Certain it is, that no damages would have been awarded had it been possible to prove that the accident on the railroad had had nothing to do with the condition of the man's leg.

Case 2.—R. E., age 52, traveling salesman, was well until 40 years of age (1880), when in a runaway, he was thrown from his carriage and injured his right shoulder. Six years later the right hand and arm began to be affected by a rhythmic tremor which was fine, most pronounced after exhaustion, but momentarily disappeared on moving the arm. In June, 1892, he had a severe attack of gonorrhea followed by cystitis. July 30, 1892, he was severely shaken up in a railroad accident on one of the Western roads.

He stated that up to the time of the accident the tremor had been limited to the right arm and hand and did not greatly interfere with his writing. Immediately following the accident his physician states that he had prostatitis, orchitis and cystitis with

severe pain in the back. Whether the shaking-up that he received on the road had anything to do with these inflammatory troubles is doubtful, as the man was addicted to the use of alcohol and was inclined to neglect himself.

Three days after the accident on the road, a tremor similar to that of the right arm and hand began to be manifest in the left hand. The right arm became worse and he wrote with difficulty. He remained in bed for thirteen weeks and was treated for bladder and other associated troubles. After he had been in bed some weeks he noticed that his right leg began to be affected by a tremor, and soon after this the left leg was involved.

A careful examination by me on Nov. 11, 1892, showed that the man was suffering from paralysis agitans. The right hand and arm had assumed the characteristic positions seen in this disease, the left hand remained constantly bent at the meta-carpo-phalangeal joints and the muscles that move the right leg at the knee were a little rigid. There was no rigidity of the muscles of the left leg. Tremor was well marked in the right arm and slight in the right leg and left arm. When he was excited there was a perceptible tremor in the left leg. Muscular weakness was pronounced in the right hand and arm, but in the other extremities muscular power was fairly well maintained. The patient was under my care for several months subsequent to Nov. 11, 1892. During this time the disease did not seem to make any progress.

A suit for damages against the railroad company was brought and the attorney for the plaintiff summoned me to testify in the case. I told him that the accident which had resulted in a few bruises on different portions of the body, had had nothing to do with starting the disease, but that it evidently had some influence in causing its extension. He seemed satisfied with this, but when I was on the witness stand he refrained from asking any questions, by answering which I could inform the jury that the man had been suffering from paralysis agitans for a number of years before the occurrence of the railroad accident in which he had been hurt. I was asked if I had examined and treated the plaintiff; from what he was suffering; the cause of paralysis agitans, and if an injury such as he had sustained in the railroad accident, was capable of giving rise to paralysis agitans or causing its rapid extension. I was not asked either by the attorney for the plaintiff or defense whether I knew or thought the accident in question had been the cause of the disease from which the plaintiff was suffering. The medical witnesses for the defense honestly admitted that the man was suffering from paralysis agitans, and as they knew nothing of his history they were free to admit that the injury received in the collision was the probable cause of the disease. The man was awarded $7000 damages by the jury and the whole amount with interest was paid about eighteen months later.

How easy it would have been to prevent such an exorbitant award for damages had it been known by the attorney for the defense that paralysis agitans had existed for years before the railroad accident. The urethritis from which the man suffered a month or so before he was shaken up on the railroad was the probable cause of the cystitis, orchitis and prostatitis, but the attorney for the plaintiff made it appear to the jury that these resulted from the injuries received on the railroad.

It may be thought by some that I was in the wrong in not telling the jury that the nervous trouble from which the man was suffering antedated the railroad accident about six years. Witnesses are sworn "to tell the truth, the whole truth and nothing but the truth."

The understanding that I had with the plaintiff's attorney was that he only claimed damages for the rapid progress of the disease caused by the accident, and in consequence a probable shortening of the man's life by a number of years. The questions asked me by the plaintiff were absolutely fair. The principal one was: "May an injury, such as the plaintiff is alleged to have received, be the cause of paralysis agitans or result in its extension?" There could be but one answer to this. Up to the time of my cross-examination I believed that the attorney for the plaintiff intended only to put in the plea of exaggeration of the disease and shortening of life. As soon, however, as it was found that the attorney and witnesses for the defense knew nothing of the man's history previous to the accident of 1892, the way was open to claim that the railroad company was responsible for causing the disease. I had left the witness stand before I saw the turn the attorney for the plaintiff had made. I could not then interfere. Although a witness is sworn to tell the whole truth, yet the expert witness is usually limited to opinions at which he has arrived through special training in a particular line. Once, while on the witness stand testifying as an expert, I saw that the attorney who had summoned me in the case, by shrewd questioning was perverting the truth so as to make my testimony very unfair to the opposite side, and I requested an opportunity to explain, but the judge reminded me that it was the business of the attorney for the defense to look out for his client.

In the second case reported in this paper injustice to the defendant could have been prevented by the railroad company having had a careful neurologic examination made of the man's condition soon after the occurrence of the accident. A complete history of the man's health up to that time would have thrown light on the case.

I have not found that people who have been injured on a railroad object to a careful examination by a physician employed by the road, if the examination is proffered soon after the occurrence of an accident, before an attorney is consulted. It is at such a time that a fairly accurate history of the injured person's health can be obtained by the physician of the road.

The injured are at first anxious to ascertain the extent of their disabilities and the probable results of their injuries, and the more attention that is paid them by officials of corporations the more communicative and confidential they become.

I have been acting as consulting neurologist to one Western railroad for a period of about nine years, and during this time I can recall numerous cases of injury for which claims for damages without suits have been settled for nominal sums, because careful examinations of the injured had been made soon after the occurrence of the accidents. In numerous other instances suits for damages have not been brought, or if brought the parties have received no damages on account of the company being able to show that certain states of ill health antedated the accident in which the persons claimed to have been injured.

In conclusion, I wish to say that I believe every

railroad or large corporation should have a consulting neurologist, and that the chief surgeon of the road should insist that a careful neurologic examination be made of most of the injured as soon after accident as possible, especially in those cases in which there is likely to follow a suit for damages.

DIAGNOSIS OF TYPHOID FEVER.

Read at the Anniversary Meeting of the Calhoun County Medical Association at Battle Creek, Mich., Dec. 12, 1897.

BY A. W. CRANE, M.D.
KALAMAZOO, MICH.

The diagnosis of typhoid fever is a very modern achievement. A long list of diseases has been recognized by physicians from the time of Hippocrates, but the disease-entity which we call typhoid fever was not recognized as a separate disease until the early part of the nineteenth century. The name typhoid was bestowed upon it in 1829, but even then it was confused with typhus fever, and it remained for a distinguished American physician, Gerhard of Philadelphia, finally to differentiate it from all other fevers. This was in 1837. It was less than ten years before the discovery of anesthesia by ether. Pause and consider with what rapidity the science of clinical diagnosis has developed. Within the memory of physicians yet living, typhoid fever, now one of the corner stones of a medical education, was for the first time differentiated as a truly distinct disease. This remarkable fact allows one to doubt the reputed powers of close and keen observation in our medical forefathers.

However, we must recognize today the great difficulty of diagnosticating the continued fevers from clinical symptoms alone. The cautious practitioner is wary of giving an early diagnosis. Long differential tables of symptoms still fail to give much certainty to his conclusions when he is called upon to decide in the beginning between such diseases as scarlatina and measles; tonsillitis and diphtheria; or simple continued fever, bilious fever, septicemia, miliary tuberculosis, malaria and typhoid fever. In the first days of almost any fever not accompanied by an eruption as in measles, or a local sign as in tonsillitis, the possibility of typhoid fever arises in the mind of the attending physician. He watches for an ascending pyrexia with morning remissions, a diarrhea, an abdominal tenderness, an enlargement of the spleen, and a rose-colored eruption over the abdomen; but he has to remember that the eruption is absent in 30 per cent. of cases and indistinct in half the remaining, that the enlargement of the spleen may be present in malaria and other diseases, that diarrhea may be absent or replaced by constipation, and that the fever curve has no constant characteristics whatever. So uncertain is the early diagnosis, that if the temperature drops on the tenth or fourteenth day the physician is often undecided in his own mind whether the patient really did have typhoid. If he has been shrewd enough not to have committed himself he is likely to call such a case bilious fever.

To illustrate the truly serious difficulty of making a differential diagnosis in some cases, at any stage, I will quote a few passages from Osler's "Practice of Medicine," second edition. He says (p. 33) "The early and intense localization of symptoms in certain organs is a frequent source of error in diagnosis. The following are the most frequent deviations from the normal course: *a*, onset with pronounced nervous symptoms; *b*, with pronounced pulmonary symptoms; *c*, with intense gastro-intestinal symptoms; *d*, with symptoms of acute nephritis (p. 13). Cases coming on with severe headache, photophobia, delirium, twitching of the muscles and retraction of the the head are almost invariably regarded as cerebro-spinal meningitis. I have thrice performed autopsies on cases of this kind in which no suspicion of typhoid fever had been present, the intense cerebro-spinal manifestations having dominated the scene. Fully one-half of the cases of the so-called brain fever belong to this category. Misleading pulmonary symptoms occasionally develop at the very outset of the disease. The bronchitis rarely causes error though it may be intense and attract the chief attention. More difficult are the cases setting in with a chill and followed rapidly by pneumonia. I have brought such a case before my class one week as typical pneumonia and a fortnight later shown the same case as undoubtedly one of typhoid fever. In another case in which the onset was with definite pneumonia, no spots developed; and though there were diarrhea, meteorism and the most pronounced nervous symptoms, the doubt still remained whether it was a case of typhoid fever or one of pneumonia in which severe secondary symptoms developed. There is less danger of mistaking the pneumonia which develops at the height of the disease, and yet this is possible as in a case admitted a few years ago to my wards; a man aged 70, insensible, with a dry tongue, tremor, ecchymosis upon the wrists and ankles, no rose-spots, enlargement of the spleen, and consolidation of his right lower lobe. It was very natural, particularly since there was no history, to regard such a case as senile pneumonia with profound constitutional disturbances; but the autopsy showed the characteristic lesions of typhoid fever" (p. 33–34).

"The differential diagnosis between general miliary tuberculosis without local manifestations and typhoid fever is extremely difficult. The cough may be slight or absent. Diarrhea is rare in tuberculosis; the bowels are usually constipated, but diarrhea may occur and persist for days. In certain cases the diagnosis has been complicated still farther by the occurrence of blood in the stools. Enlargement of the spleen occurs in tuberculosis, but is neither so early nor so marked as in typhoid fever. In children, however, the enlargement may be considerable. The urine may show traces of albumin and unfortunately the diazo-reaction which is so constant in typhoid fever, is also met with in general tuberculosis" (p. 219). "Typhoid fever has been mistaken for appendicitis. I was told of a case recently, in one of the large hospitals of this country, in which the fever and the presence of a tender induration in the right iliac fossa seemed to indicate appendix disease so clearly that an operation was performed, but the induration was found to be the swollen ileum and adjacent glands. In a person who has had a previous appendicitis the diagnosis might be extremely difficult, as in a case mentioned by Da Costa. Late in the convalescence of typhoid fever the symptoms of appendicitis may develop, due to the perforation of an unhealed ulcer" (p. 440).

These extracts from Osler show us that even a master may in some cases be unable to make the diagnosis of typhoid fever, except by autopsy. In this connection it might be said that a custom of holding more frequent postmortem examinations would ele-

vate the practice of medicine in any community. How many atypical cases of typhoid must run their courses under other names and even end unrecognized in death!

The means of diagnosis within the reach of the general practitioner, today, are the clinical and the laboratory methods. With the clinical we are all familiar, but the other methods have developed so rapidly, and are surrounded with so much technicality that the busy and over-worked doctor has not always taken the time to estimate them at their true value.

Much has been expected from bacteriologic examination. When any disease is proven to be caused by a particular micro-organism the problem of diagnosis would seem to be greatly simplified. The detection of the specific germ would appear to be an early and certain means of diagnosis. This is pre-eminently true of tuberculosis and diphtheria, but it is not true of typhoid fever. Yet it is sixteen years since Eberth and Koch discovered and demonstrated the etiologic relations of the typhoid bacillus—years which have formed a period of astonishing activity in bacteriologic research, so that today the technique of experimental bacteriology with its test tubes and cotton plugs, its culture media and thermostats, its guinea pigs, stains and microscopes, has become a familiar equipment in practical medicine. Nevertheless, the identification of Eberth's bacillus is too lengthy, too difficult, and too uncertain to compete with the clinical means at our disposal.

However, two methods deserve to be mentioned, namely, that of Elsner[1] and that of Hiss[2]. The principle of Elsner's is that of almost every method yet proposed for the isolation of the typhoid bacilli. It is to add to a culture medium some substance which will prevent the growth of other bacteria without inhibiting the growth of Eberth's germ. The method of Hiss is based upon the characteristic spread of motile bacilli when grown upon acid glucose-gelatin agar kept semi-liquid at 37 degrees. Either of these methods requires two days for completion, and is too expensive to be used with any but wealthy patients, or under the auspices of a liberal board of health. As a matter of fact, it is now two years since Elsner published his method, yet we hear of no one using it in the diagnosis of typhoid fever. Within five weeks, however, the New York City Board has issued a circular announcing the new method of Dr. Hiss, its assistant bacteriologist, by which typhoid bacilli may be detected in the feces and urine of typhoid fever patients. It reads in part as follows: "The Health Department desires to thoroughly test this method and is prepared to undertake these examinations if proper specimens are furnished. The experience thus far obtained seems to indicate that the bacilli may be obtained from about 50 per cent. of all cases on the first examination and from about 90 per cent. after repeated examinations. The Health Board hopes that these examinations will prove of value not only for diagnostic purposes but also in solving sanitary questions relating to the presence in, and the time of disappearance of the bacilli from the stools during convalescence."

A prediction may be ventured that this method, like that of Elsner, will prove a failure in the practical diagnosis of typhoid fever. Eberth's bacilli may not appear in the stools until the tenth day or later. These facts are commented upon by Osler in his second edition. In fatal cases, even cultures from the small intestines obtained postmortem may not show the bacilli. But in the walls of the intestines, in Peyer's patches, in the ulcers, in the mesenteric glands, spleen and liver, the bacilli occur in large numbers and usually in pure culture. These facts explain the strictly limited success of the best antiseptic and eliminative forms of treatment, even including that of Dr. Woodbridge.

The obstacles to the early bacteriologic diagnosis of typhoid fever appear insurmountable. Have we then no early sign of the disease? Fourteen years ago Ehrlich tried to answer this question by an examination of the urine. He discovered the well known diazo-reaction. This valuable test has been strangely neglected by the profession as a body, and strangely misstated in some of the books, notably in the great work of Von Jaksch, in German, and in the "Medical Diagnosis" of Musser, in English. Osler, however, gives it correctly. The pink color of the foam is the distinctive feature of the diazo-reaction. It is present in nearly every case of typhoid and often by the fifth or sixth day. It usually disappears before convalescence begins, and varies in intensity with the severity of the case; hence it is a sign in prognosis. Unfortunately the diazo-reaction may occasionally be present in tuberculosis, in pneumonia and in septicemia.

Up to this point we have found no single sign or symptom, or combination of signs and symptoms which are invariably and exclusively present in typhoid fever. Our clinical anchors are the continued pyrexia, the diarrhea, the dicrotic pulse, the enlarged spleen, the roseolar eruptions and the lapse of time. The diazo-reaction gives additional security. If only these symptoms were all present in all cases we would not in years past have had to wait so often for the lapse of time to clear up the clinical picture, or finally to compromise on such a diagnosis as typho-malaria, pleuro-typhoid or typho-pneumonia. We may say that the clinical symptoms alone are usually insufficient to give us a positive diagnosis at an early stage in the disease, and moreover, are often insufficient to give a diagnosis at any stage. Even the best diagnosticians teach us how often a postmortem examination will reveal an unsuspected typhoid ulceration of the bowel.

The last eighteen months have, however, placed the diagnosis of typhoid fever upon a new foundation. Now we can detect typhoid at an early stage more rapidly and with more certainty than is the case with any other infectious fever. Still more suprising than this is the fact that we can tell whether the patient has had typhoid fever, months and sometimes years after recovery. It is done by the examination of a drop of the patient's blood dried upon a piece of paper. A drop of blood thus dried could be sent across the Atlantic and examined weeks afterward in Europe with the same precision that it could at the bedside of the patient. This is the serum-diagnosis of typhoid fever, which already, like the diphtheria antitoxin and the X-ray, has become an old story to the medical public. But since it is an old story some of you may have forgotten it, and I will risk a repetition of well-known facts.

The serum-diagnosis is based upon the discovery,

[1] For the practical details of this method see Crane, "Bacteriological Diagnosis of Infectious Diseases."—Supplement to the Report of the Michigan State Board of Health for the year 1896, No. 463, p. 114.

[2] For a complete account of Hiss's method see Hiss, "On a method of Isolating and Identifying Bacillus Typhosus."—Journal of Experimental Medicine, 1897, Vol. 2, No. 6.

by Pfeiffer of Berlin, of bactericidal substances in the blood of typhoid fever patients. He found, when the serum of such blood was mixed with an active bouillon culture of Eberth's bacillus in a test tube, that after a few hours in an incubator the bacilli were agglutinated in masses and had settled to the bottom of the tube, leaving the upper part of the bouillon clear. His original method, which required a considerable quantity of pure, sterile serum, was complicated and difficult. Widal of Paris greatly simplified the process by mixing a drop of the bouillon culture of the typhoid bacilli with a drop only, of the fresh blood serum and observing the reaction under the microscope. The active movements of the bacilli were arrested and the bodies of the germs became adherent, forming clumps which are characteristic of this reaction. Further investigation by Widal and Sicard showed that the drying of the serum did not destroy its bactericidal properties. It remained for Johnson, working independently of Widal, to demonstrate that "the fluid obtained by moistening a dried blood-drop gives the reaction in a prompt and satisfactory manner, even after it had been dried for several days." This modification brings this valuable test within the sphere of practical medicine and of municipal boards of health.

The microscopic examination of the hanging-drop preparation of Eberth's bacilli leads one to wonder why it is, that in a case of typhoid fever the patient's blood and every organ in his body are not swarming with these active, squirming, whirling, shooting germs; but when once the typhoid reaction is observed, when the active germs become quiet, when their dead and dying bodies agglutinate in clumps as though they had become partially dissolved and sticky, then we see that the patient's blood has developed a poison to these germs — a bactericidal substance — without which every case of typhoid probably would come to a fatal termination.

So remarkable a reaction speedily became the subject of very numerous experiments. It was found that, aside from blood, the reaction could be obtained in typhoid cases from blister serum, from pericardial, pleural, peritoneal and joint serum, from milk, from pus and from tears. The reaction is feeble in the juices of the spleen, kidneys and liver, while the sweat, saliva, and gastric juice are without the power. Practically we may use fresh blood, dried blood, and blister serum.

A pure culture of the typhoid bacilli is an unqualified necessity. It may be either a bouillon or an agar culture, and the bacilli may be virulent, attenuated or dead, and still give the reaction. If a dried drop of blood is dissolved in a drop of water, or if the undiluted serum is used, a fresh culture may give the reaction, occasionally, when the subject is healthy or has some disease other than typhoid. The reaction is quantitative rather than qualitative. It was found advisable, therefore, to use an attenuated culture, which is less sensitive, or else to dilute the blood or serum solution. Johnson's method is to use an attenuated culture and the dried blood without a definite dilution. He claims to thus practically eliminate the margin of error. The New York Board of Health uses a very active, virulent culture and blister serum in the dilution of one in ten. They claim reliable results in 90 per cent. of cases. As a summary of the many careful experiments, we may say that with a dilution of the serum, one in ten, or with a properly attenuated culture, and a time limit of thirty minutes, the serum-diagnosis of typhoid fever is as reliable as the bacteriologic diagnosis of tuberculosis and diphtheria.

Certain rare cases which, clinically, are typhoid fever, fail to give the serum-action with Eberth's bacilli. A number of observers, Johnson in particular, have found that the blood of such cases will, as a rule, react with the colon bacilli, thus indicating a colon instead of a typhoid infection. Johnson also found that a certain proportion of cases would give a positive reaction with either germ, thus indicating what would seem to be a double infection. Under these circumstances it seems wise in every case to examine the serum-reaction to the colon as well as to the typhoid germ.

The serum-reaction in cholera and certain other diseases is interesting, but has no practical connection with the diagnosis of typhoid fever. The greatest margin for error in the use of the serum-reaction lies in the fact that the blood may retain the power to react months and sometimes years after recovery. Thus it is necessary to exclude a previous attack of typhoid, and this may be difficult since any patient is likely to have had a mild or unrecognized attack.

In the very small proportion of cases where the clinical symptoms, the uranalysis, and the serum-reaction still fail to give us a positive diagnosis, we have additional means of very great value. If the decision lies between typhoid and malaria, an examination of the blood in cover-slip preparations will show us the presence or absence of the plasmodium malariæ. If the balance rests between typhoid and any form of septic fever, cover-glass preparations of the blood, or better, the hemocytometer, will show us the presence or absence of an inflammatory leucocytosis. If the diagnosis is between typhoid and general tuberculosis, an examination of the sputum will sometimes, though far too seldom, give us the positive sign. But with these various means at the command of the profession, in addition to the clinical course and history of the case, it would seem no longer necessary for any case of continued fever to come to the postmortem table for a diagnosis.

To settle the diagnosis does not end the labors of the diagnostician in a case of typhoid fever. The case must be watched for complications. Pneumonia, pleurisy, pericarditis, meningitis, nephritis; the formation of pus in the middle ear, or in the spleen, liver, or brain; perforation, hemorrhage and peritonitis, are all to be dreaded by the attending physician. The sacred precinct of the clinician is even here invaded by the laboratory method. The uranalysis has long been a routine examination during the latter half of a case. Of greater importance is a routine examination of the blood. A leucocytosis means a complication. It may be an on-coming pneumonia or a meningitis or a purulent inflammation anywhere in the body. The latter, especially if it be a deep seated abscess, may be otherwise unrecognizable. However, it should be said that nowhere does careful clinical observation count for so much as during the course of typhoid fever in the presence of complications. Laboratory methods are strictly subordinate, and the old time general practitioner is a supreme necessity.

In conclusion, we may say that the diagnosis of typhoid fever may at times tax the utmost resources of the physician, and yet in no disease are the diagnostic resources so varied and so abundant. The clinician, the pathologist, the chemist, the hematologist

and the bacteriologist have been laid under tribute. And, as the product of their labors and genius, we have some of the most remarkable methods that have ever been applied to the study of disease.

REPORT OF A FEW CASES OF APPENDICITIS.

Read before the Camden City Medical Society, Nov. 3, 1897.

BY O. W. BRAYMER, M.D., PH.D.
CAMDEN, N. J.

I shall only report the histories of a few cases that have recently come under my care and not undertake to give an extensive digest of the history of appendicitis and its treatment.

Case 1.—T. R., male, aged 17 years, a farm hand, had been taken at about 8 A.M. with severe cramp-like pains in the abdomen, on the right side, low down, two days before coming to the Cooper Hospital. On the day I first saw him he was suffering great pain in the right iliac region. There was some distention of the abdomen, a history of constipation, a tendency to lie with the right thigh flexed on the abdomen, marked tenderness over the region of the appendix, together with tension of the abdominal muscles of the right side, and a mass could be outlined beneath the muscular wall in this region. There was some rise of temperature and a look of intense suffering on the patient's countenance. It was decided that the case was one of appendicitis and that operation should be done at once. This had every appearance of being a case of so-called fulminating appendicitis. I operated in the afternoon of the same day that the patient was admitted and as soon as the incision was made over the region of the appendix and the cavity of the peritoneum opened there was present a fecal odor. The appendix was found to be gangrenous, firmly adherent to the under surface of the cecum and contained several coproliths. After carefully breaking up the adhesions the appendix was amputated and the stump inverted into the bowel. The wound in the cecum was closed by a double row of fine silk sutures; the darkened spots on the bowel where the appendix had adhered, were carefully cleansed and nothing more done with them, as the discoloration seemed to be only superficial. I did what I will never do again in such a case, viz.: irrigated the cavity with 1 to 10,000 bichlorid solution and followed this with distilled water. I am now of the opinion that normal saline solution is one of the best fluids to irrigate the cavity with, following such cases. The wound in the abdominal wall was closed by one layer of sutures and a space left for a drain of iodoform gauze.

This patient suffered great pain for many days after the operation and had considerable difficulty in getting his bowels to move, notwithstanding he had taken small doses of calomel from the first, followed by the salines. There was very little discharge of pus from the wound, and after about the usual length of time, where drainage is used, the opening closed. The patient entered the hospital June 23 and was up and around his room July 13, but still complained of some pain in the region of the pubes. He was allowed to go home about one week later, and at that time was in very good condition. He was sent back to the hospital in a few weeks, suffering with intestinal obstruction, having eaten a large quantity of summer squash.

An operation by one of my colleagues revealed a constricted strangulated bowel, with much gangrene, and through the softened tissues a vast number of squash seeds were pointing in various directions. The patient died. The obstruction which caused his death was partially due to the adhesions which had formed during the attack of appendicitis, yet the final result might perhaps have been avoided, had the patient been more careful of his diet.

Case 2.—A. B., male, aged 43 years, applied to me in March to get relief from an attack of severe abdominal pain and vomiting. He stated that he had been sick about three days, with coryza and la grippe. I found the man in a state of collapse, with general abdominal pain and vomiting. He was given morphin with atropin and strychnin hypodermatically and after about two hours was left in a fairly comfortable condition. Divided doses of calomel were given to clean out the intestinal tract and gradually the abdominal pain settled down to a point of greatest tenderness over the region of the appendix. There was a slight rise of temperature and some chilly sensations. The calomel moved the bowels satisfactorily, but there gradually developed an area of dulness in the right iliac region. There was a mass in the region of the appendix. He was removed to the hospital and was operated on at 9:30 P.M., March 18, 1897.

An incision over the prominent part of the swelling revealed about eight ounces of pus, which was evacuated and the cavity irrigated with a warm saline solution. A portion of omental tissue had been walled off by the pus pocket and, to avoid infection of the general peritoneal cavity, this portion of the omentum was ligated and removed. The wound in the peritoneum was closed with catgut, the muscular walls with kangaroo tendon and the skin with silkworm gut sutures, leaving an opening for drainage, the drain being composed of a small strip of iodoform gauze. This man had an uneventful recovery and three weeks after the operation was out and soon after resumed his business.

Case 3.—W. W., male, aged 21 years, came to the hospital April 12, 1897, with the following history: About two months previously he began to have attacks of severe abdominal pain, especially around the umbilicus and in the right iliac fossa, which pain had continued with more or less severity ever since. The bowels had been opened once or twice each day and there had been no nausea.

Examination showed great tenderness about the umbilicus and especially over McBurney's point, and the whole right side was tense and rigid. The patient when lying down kept the thigh flexed on the abdomen. No induration or fluctuation could be detected. The patient was told that he had chronic appendicitis and he decided to have the organ removed.

I made the usual incision through the abdominal walls, and found a thick, stiff appendix, pointing toward the umbilicus, somewhat adherent at the distal extremity and containing some fecal matter. The appendix was amputated close to the cecum. The stump was inverted into the cecum and the wound in the bowel closed by means of the Lembert suture, using two rows of sutures, made of number twelve black silk. The peritoneum, muscles and fascia were closed with kangaroo tendon, interrupted sutures, and the skin by silkworm gut. The patient had an uneventful recovery and was discharged cured May 4, 1897.

Case 4.—C. K., male, aged 19 years, came to the Cooper Hospital May 5, 1897, to obtain relief from excruciating pain in the abdomen, centering in the region of the appendix. This pain had been so severe during the past few days that it debarred him from any labor. Four years ago and again two months ago there had been similar attacks, but less severe. This attack began May 3, at 10 A.M., with sharp pains in the right inguinal region. There was no diarrhea or vomiting until after taking some soup the day before entering the hospital. Examination showed a tense abdomen, right thigh flexed when patient reclined, anxious countenance, tenderness in the right iliac region and a slight rise of temperature.

I operated upon him May 6, 1897. The appendix was found to have an adherent bulbous distal extremity; the adhesions were carefully broken up and the organ brought into view. The appendix was amputated near its colonic attachment, the stump was invaginated and the wound in the cecum closed with two rows of fine silk sutures, the peritoneum with a row of fine kangaroo tendon sutures and the muscles, fascia and aponeuroses were closed in a like manner. The skin was closed by a continuous intercutaneous suture, and the wound was dressed absolutely dry. There was some extravasation of blood under the skin, which on May 12 was discharged through the center of the opening. This discharge had a bad odor and at first was supposed to be fecal, but as no opening could be found through the muscular tissues, and as no further symptoms pointing to a fistula made their appearance, it was decided that the odor was due to the decomposition of the serum which had accumulated beneath the skin. The wound was cleansed and brought together by means of three silkworm gut sutures and recovery was uneventful. The patient was discharged cured June 4, 1897.

Case 5.—J. O., male, aged 15 years, came under my care as a private patient May 13, 1897, suffering from the ordinary symptoms of an acute attack of appendicitis. He was treated by absolute rest in bed, calomel in divided doses, together with salines and a liquid diet.

May 20 there was great tenderness in the right iliac fossa, temperature of 102.5 F., rigidity of muscles of right side of abdominal wall, a tendency to keep the right thigh flexed on the abdomen and a circumscribed swelling in the region of the appendix. I operated at 5:15 P.M. About eight ounces of very offensive curdy pus was liberated and the cavity irrigated with a saline solution. The incision was closed by means of five interrupted silkworm gut sutures, leaving room for a small iodoform gauze drain which was inserted. The patient was discharged June 3, having made an uneventful recovery.

Case 6.—A. J. S., aged 30 years, came under my care at about the same time as did Case 5. The two cases had about the same symptoms, tenderness and temperatures, and both were treated similarly up to the time that Case 5 required operative measures. This man, however, made a good recovery in about three weeks without any operation and has had no return of the symptoms, with the exception of slight pain, at times, in the region of the appendix, but not severe enough to call for further interference.

At this writing all of the above patients, with the exception of Case 1, are well and attending to their usual duties.

In my own practice and in consultation with my colleagues I have, in the past year and a half, seen about twenty cases of appendicitis of almost every degree of severity, and I have become thoroughly convinced that, as a rule, the surgeon is not called early enough in the development of the disease to get the best result.

In treating chronic recurrent cases, unless they progress badly, it is best to wait until there is a lull between the attacks, for this is the most favorable time for operation.

If we are convinced that an abscess is forming we should wait, if the case will allow, until the abscess wall is strong enough to withstand surgical interference.

In abscess cases I would never hunt for the appendix if it is not present in the pus cavity.

I believe the best method of removing the appendix is to cut it off close to the cecum and treat the wound thus formed as you would any other small wound in the intestine.

And finally, in my opinion, it is bad practice to apply blisters and like remedies over the region of the appendix, when treating the disease, because, if operative measures are subsequently adopted, there will be more probability of suppuration and sloughing in the wound.

SAVE THE PIECES.

Read before the Fox River Valley Medical Society April 27, 1897.

BY J. R. BARNETT, M.D.

NEENAH, WIS.

It is not long that "conservative medicine" and "conservative surgery" have been familiar terms to our ears; and yet by reason of their repetition it seems long. They would have sounded strangely in the mouth of a Watson or Erichsen, and were tentatively and diffidently spoken by a Flint and a Gross.

Every day has its surgical record which reads as if the word conservative had not been incorporated into the language of our art; and as if surgery meant only amputation, mutilation, disfigurement, and as if her chosen colaborer were that carpenter of prothetic art, the wooden-leg maker. If one had the power to glean the facts and give a clinical report of the needless mutilations of yesterday, done under the stress of supposed necessity, of fingers and toes, hands and feet, arms and legs, amputated because their salvation was doubtful or deemed impossible, it would be a ghastly record. Preservative surgery is a term more in harmony with our conception of a surgeon as one whose art is invoked to save, first the man, and next, as much of the man as possible. Our old student admiration for the surgeon who could complete a major amputation in four minutes by the watch, and triumphantly exhibit three-fourths of a man as secured to life, if laudable pus but crowned his skilful work, is now quite misplaced. The compound fracture and the lacerated tissues that justified it then would offer no defense now. We have to answer to our conscience, the question, can the limb be saved, even at a little greater risk to life, and at the added cost of much longer, pains-taking and unattractive care in the after-treatment? We have even to face the clamor, grown popular as well as professional, for an aseptic operation that shall make even laudable pus both unlaudable and reprehensible, and that shall make the final treatment of the wound a matter of one or two dressings. The surgeon delights in such an operation, and the people look upon anything less as evidence of unskilful work. Nevertheless, the present requirements of our art are such that we must face the charge of reactionary and retrogressive tendencies, since preservative surgery means something of a return to the patchwork of olden times, and something of a flouting of that potent organism, not then recognized in high scientific circles, the pus microbe. If we are to save the pieces, we must often save them in company with several busy colonies of that same microbe, which not all the antiseptic scrubbings and irrigations will with certainty avail to wash away or kill. A hand mangled on the deadwood, or crushed in the dirt of the street, is the certain host of innumerable germs; and the temptation to dispose of both host and guest, once for all, by a few touches of the knife and saw, is a deadly one; but it is a temptation to be resisted so long as whole blood vessels and nerves traverse any portion of the mangled member. Every finger and part of a finger in which life can be kept should be spared, even if the bones are fractured, and the fractures are compound. Is its integument partly gone? Patch it up.

Is a partial excision necessary, with any part of the saved member of doubtful vitality? Patch up an excess of integument at the amputated part to hold in reserve for the possible needs of repair later on. If such repair is needed you will bless your provident forethought; if it is not needed the redundant integument will atrophy and disappear, if not too great, or it can be easily trimmed away.

Frost bitten members should be put in a protective dressing until nature points out the utmost limit of vitality; and the saw or bone forceps should be about the only instrument needed to complete the amputation; for nature has shaped a bloodless flap, which will fall naturally enough over the end of the severed bone.

Burns of the extremities, involving the deeper tissues, should be treated in the same way. The preliminary waiting will be safer, for the destructive agent has sterilized the part with the utmost thoroughness.

To discuss conservative operations with reference to prothetic aid later on, would need both more time and an abler essayist. The question has been much considered from both sides, and both sides have seemingly strong arguments.

Permit me to outline a few cases:

Case 1.—A workman in a planing mill had the back of his hand so lacerated by a saw that the integument was literally in strips. Some of the extensor tendons were shredded up and some of the phalangeal bones uncovered, and in a few places sawn through. Every finger, including the thumb, had at least one joint opened up and more or less injured.

The shredded, soft tissues were trimmed away, the multiple lacerations carefully sutured, and a protective dressing and splint applied. A thoroughly useful hand was saved, and one not greatly impaired in its necessary movements.

Case 2.—A man aged 60 years, froze all the fingers of one hand. When he consulted me, a few days later, three of the fingers were swollen and discolored their entire length. Fortunately he had done them up at the outset in antiseptic cotton, so that they were in good condition for preservation until a limitation of vitality could surely be made out. He lived at a distance, and various delays occurred, so that amputation was not performed until a month later, when I found the fingers, nearly to the bases of the middle phalanges, completely mummified. The living integument was pushed up a little, the bones severed with forceps, and the rather serrated flaps allowed to fall into position, no suture being used. The stumps were not handsome at the time, but in a few weeks they looked as well as if fashioned with the most fastidious care, and each of them possessed one more joint than it would have had had the amputation been primary.

Case 3.—A brakeman sustained a crushing injury of the hand while coupling. The third and fourth fingers and the ulnar side of the hand were completely pulpified and devitalized. There were compound fractures of all remaining phalanges excepting the thumb, the soft tissues being frightfully lacerated, but offering a promise of preservable vitality. Excision was done through the crushed metacarpal bones, patches of integument from the sacrificed finger being pieced together to close the wound and afford a surplus for later repairs should sloughing occur. Lacerations were sutured and ample drainage provided, and the man was sent to his home, where the most difficult part of the treatment fell to Dr. Bishop, the company's surgeon. I heard two weeks ago that the two fingers had been preserved, and the patient thus left with a comparatively useful hand.

Case 4.—February 9, a man of about 60 years of age, was caught by a moving train in such a manner that the integument was torn wholly loose from one foot, the accompanying laceration reaching from the base of the great toe, along the inner border of the foot, across the ankle and along the outer border, to the metacarpal bone of the little toe, which had sustained a compound fracture near the head. The toe was shucked out of its integument, and so was removed, with its metacarpal fragment, the skin being patched up for later repair. There was also a compound fracture of the tibia just above the malleolus, not to mention an intercondyloid fracture of the humerus of the same side, a fracture of a rib on the opposite side, and several lacerated wounds of the scalp. The skin of the foot was completely detached and crushed through at two or three points, so that the finger could be passed about underneath it, while most of the foot could be laid bare. The dirt upon, and underneath, and all about, was appalling; and much labor was spent in cleansing what may, with double aptness, be called "the field." It took more than two hours to do this and properly suture, drain and dress the foot, putting it in a fixation splint. No anesthetic was needed, as, partly from the traumatic anesthesia, partly from the head injuries, or possibly from the "drop too much," which is the usual incident in such cases, the patient felt but little pain. No part of that elaborate patch-work was saved except a fragment from the little toe and from near the base of the great toe. From a line surrounding the foot at these points to another surrounding the ankle, every vestige of that integument with its fascia melted utterly away. Most of the flexor brevis digitorum shared in the destruction, together with much of the tendo Achillis at its insertion, while the posterior surface of the os calcis became carious and had to be cut and scraped away. The wound became infected from the first, mainly by the bacillus pyocyaneus; and with the infection and the devitalization of patches of unknown depth, here and there, it took six weeks to get the field ready for grafting; the compound fracture of the tibia meantime sharing for a few days in the suppurative process, though afterward uniting rapidly. The Thiersch method of skin grafting was employed, upon the sole first, to stop cicatricial contraction as promptly as possible. The surface was most thoroughly curetted and completely covered by grafts removed from thigh. These were covered in by the usual strips of rubber tissue; a copious dressing of iodoform and sterile gauze saturated with normal saline solution was applied; over this a sheet of oiled silk, and over all a free covering of sublimate cotton. When this was removed, the fourth day afterward, every graft was alive, and only one necrosed a few days later on, when the sole of the foot was practically closed in. Eight days after the first grafting the dorsum of the foot was similarly covered by grafts taken from the other thigh, every one of which survived, although they were not placed everywhere in contact. Now, after two weeks, the only open spot is where the deeper mischief to the os calcis and tendo Achillis was done. This is closing by granulation, although it may need another curetting.

One can not say how soon the foot can be useful for all service. Probably, owing to the thinness of the new covering and the absence of subcutaneous fat, it will take many weeks, or perhaps months, of careful use with a deeply padded shoe; but that in the long run the superior usefulness of the natural member over a wooden one will fully reward all parties concerned for the tedious and unattractive work bestowed upon it, admits, I think, of no doubt whatever.

AN UNUSUAL EXPERIENCE IN DIPHTHERITIC INFECTION.

Read at the Thirteenth Annual Meeting of the Second District Branch of the New York State Medical Association.

BY E. D. FERGUSON, M.D.
TROY, N. Y.

March 15, 1897, I was requested by Dr. M. B. Hutton of Valley Falls, N. Y, to visit a family in which four members had been stricken with illness in an unusual and very serious manner.

The family consisted of the father and mother, a daughter, two sons, and a brother of the father. The daughter had been away from home, teaching school, until three or four days prior to my visit.

The cases were as follows, viz:

C. M., a boy, aged 14, became ill March 4 with the ordinary signs and symptoms of lobar pneumonia. The local physical signs corresponded to the ordinary course of the pulmonic disorder, and March 11 the lung had so far cleared as to show that some element other than ordinary pneumonia existed, for instead of an improvement in the general condition, the symptoms became progressively worse, and the patient died March 13. No complaint had been made of discomfort in the throat, and no evidence of trouble was present there, until it was too late to examine. This patient died two days before my visit.

I. M., a boy, aged 11, became ill March 9, presenting, in the same manner as his brother, the usual signs and symptoms of lobar pneumonia. A favorable course was pursued until March 14, when a membranous exudate was discovered in the throat, and death occurred March 16.

E. M., aged 62, the father of these boys, was taken ill March 11. He, also, presented all the physical signs and the symptoms of lobar pneumonia, but March 14 the throat showed an exudate and death resulted March 16.

J. M., aged 70, a brother of E. M., became ill March 12, but refused to go to bed until the following day. In his case all the classical signs of lobar pneumonia were present, but March 14 the throat trouble had developed, and death supervened on the 16th.

Of these patients, one died two days before and three were alive at the time of my visit, but they died during the following day.

The lad, I. M., was in a profoundly toxic condition, and in so profound a stupor as not to realize anything concerning his surroundings, in fact he was evidently moribund. The other two patients were fairly comfortable, having passed the stage of pain due to the pneumonitis and its associated pleurisy, the mind of each was clear, the pulse was of fair strength and not greatly accelerated, and the temperature was only slightly raised.

The pneumonitis in each and all the cases had been limited to a single lower lobe. The physical signs in the lad taken ill six days before my visit, indicated that resolution was nearly complete; in the case taken ill four days before my visit resolution had made pos-

itive progress, while in the one taken ill three days before, resolution had not begun. It seemed reasonable to hope that recovery would occur in the last two cases, but soon after my visit stupor and exhaustion developed so rapidly that they died during the following day. The exudate in each of the three cases which I saw, was quite extensively spread over the pharynx, involving the palate and uvula, and extending at some points below the parts visible on inspection by the aid of a tongue depressor. This false membrane was similar to the ordinary exudate in diphtheria, though the color was possibly a shade darker or more "muddy" than is usual.

Attention was given to the throats of the mother of the lads and her sister, who had been for several days in the house, with the result of finding redness in the pharynx of the former and a thin ash-colored exudate in the latter. Both had a slight rise of temperature, and it was deemed prudent to inject the antitoxin of diphtheria. They had no subsequent trouble.

The daughter, who had recently returned home, did not become ill, nor did any of the neighbors who casually visited the house, contract the disease. Of the four who died, not one had been away from home for a considerable period of time, nor had there been a case of diphtheria, aside from the one to be mentioned later, within a wide region thereabout, or within at least a year's time. Careful and thorough enquiry failed to disclose a source of contagion whence the disease could have originated.

The fact that lobular but not lobar pneumonitis is often due to diphtheria, and the additional fact that each of these cases began as a lobar pneumonia, that the pneumonic element of the cases made favorable progress in each instance, and that death seemed to result from some associated condition, made the problem very strange and puzzling. As no postmortem examination was had, the character of the lung trouble must be left to inference, but some of the pharyngeal exudate was subjected to bacteriologic examination. Upon staining portions of the exudate taken from the throats, the micro-organisms present showed the morphology and reaction to coloring agents that would belong to a pure culture of the Klebs-Loeffler bacillus. Several cultures were made and tests carried through all the media necessary to justify the conclusion that the throat trouble was true diphtheria.

On my return from visiting these patients, I saw a case in Valley Falls which was similar to these, except in the result. It was that of a young man who had been ill for a sufficient length of time to be in a convalescent state at the time of my visit, although some exudate remained in his throat which presented the same appearance and gave the same microscopic results as in the other cases. He also had the initial pneumonia.

Having thus settled that the disease and cause of death in these cases, aside from the pulmonary element, was diphtheria, the source of infection became the subject of enquiry. The development of the disease in the four male members of the family within so brief a period of time, would justify the idea that there may have been a common exposure, though the first case may have been the source of infection for the others.

It was found that, just before the development of the first case, the four had spent some time in the cellar "sprouting potatoes." This cellar had foul air due to the presence of decaying vegetable matter. There was also in the cellar an unused well. In view of the more recent views concerning the sources of infection in diphtheria, it did not seem probable that the cause would be found there, and a bacteriologic investigation of the cellar did not seem practicable. That the pneumonia may have originated there is not impossible or even improbable, but there did not seem to be any practicable method by which such a problem could be settled.

The difficulties which accompany such bacteriologic investigations are exemplified in the following search for the source of the diphtheria. By chance it was learned that a well existed some distance back of the house, and not far from the barn. The water of this well had been so offensive that it had been "pumped out" several times during the winter, but without removing the offensive odor. In spite of the offensiveness of this water, it was known that three of the patients had drunk from the well, and probably the fourth had done the same. Though hardly expecting to find the source of infection in the well, some of the water was taken by Dr. Hutton in a clean bottle and brought to my office for examination. The offensive odor of the water was manifest when the bottle was opened in my office, though the water was clear to the eye.

Plate cultures were made from the sedimented portions taken from a centrifuge tube, with the following results: They showed the morphology, and staining reactions of the Klebs-Loeffler bacillus, and had investigation ended with the ordinary tests made to detect and differentiate the diphtheria bacillus in throat trouble an error would would have resulted, for the conclusion would have been reached that the bacilli found were the cause of the diphtheria. Some stab cultures were made from the plate cultures and the material was carried though the various tests to settle the question. Even with this care, at first it was probable that we were dealing with the diphtheria germ, but the tests, which extended over several weeks of time, finally showed that this bacillus was one of the numerous water-bacilli which do not liquefy gelatin. We were thus left without an explanation of the origin of these cases. That in some way there had been an exposure to the special cause of diphtheria, and an incident exposure to the pneumococcus, is a reasonable conclusion, but the source of each must remain unknown.

The conjunction of these two probably distinct diseases in each of the entire series of cases, renders the instance rare and interesting. While we can not affirm that the pneumonic trouble was distinct from the pharyngeal disease, still the clinical history and distinct limitation of the lung element to a single lower lobe in each case, would justify that inference.

COLOR PHOTOGRAPHY AS APPLIED TO DERMATOLOGY AND SYPHILOLOGY.

Presented to the Section on Cutaneous Medicine and Surgery at the Forty-Eighth Annual Meeting of the American Medical Association at Philadelphia, June 1-4, 1897.

BY W. S. GOTTHEIL, M.D.

NEW YORK, N. Y.

The correct picturing of the manifold lesions of the skin is a matter of interest to those engaged in the study of dermatology. It is important, first, to secure a permanent record of a rare dermal lesion. Only by plastic or pictorial representation can the evanescent

forms of skin disease be fixed and held; for a verbal description, no matter how exhaustive or how carefully made, is necessarily insufficient as regards form and distribution, and more especially as regards color; and second, the multiplication of such reproductions is of importance to us for the purposes of journal and book illustration.

For record or demonstration, models or casts in plaster, wax, or paper, are undoubtedly most satisfactory; for shape, location, color, all the factors necessary for diagnosis, with the exception of those perceptible to the touch, can be reproduced with an exactitude and a verisimilitude that leaves nothing to be desired. Unfortunately, however, this method of reproduction is tedious, dirty and troublesome; and a necessary factor for its successful execution is an amount of artistic discrimination, taste and skill, that is not in every one's possession. The time required for the preparation of models, and the expense involved therein, will continue, I think, to restrict their use and limit their production. Paintings in oil and in water colors are expensive luxuries when done with any finish and attention to minute detail; and the artist's individuality, the things he sees, or thinks he sees, the methods that he employs to depict these things, in other words the personal equation, is often painfully apparent. Photographic reproduction, while excellent for minute detail, necessarily neglects the very important element of color entirely. True color photography appears to be still far in the future, unless the recently loudly heralded process for that purpose that has come from Paris should prove to be more reliable than its predecessors.

Turning now to the production of illustrations in quantity, it is very apparent that a process that is to be practical, more especially as regards expense of production, must be one that can be accomplished wholly by mechanical means. The photo-mechanical processes and photogravure have been greatly developed in recent years, and the results obtained from them are in many respects admirable. But the same objection of the absence of color applies to them as to photography. The various processes of colored depiction, that I may group as the chromo-lithographic, have in some cases given good results; but there is in most of them a crudity and a grossness of coloring that render them diagrammatic rather than pictorial.

Some two years ago my attention was called to a process in which, by the conjoined use of the camera and the press, representations of objects in colors true to nature could be obtained and reproduced in unlimited quantities at a moderate cost. Printed by this so-called "three color process" I saw a number of copies of paintings, rugs and other flat objects that were surprisingly accurate in form and coloring. It had not up to that time been used on life subjects; but on inquiring into its method, I saw no reason, other than possible technical ones, why this should not be done. It seemed to me that, if this method could be successfully developed, it would be of value in various departments of medicine, and especially so in dermatology and syphilography. Photographs could be made by an ordinary operator, or by the physician himself, from life; and the negatives once successfully taken, reproduction to any extent could readily be done. I found that the cost of the method compared favorably with that of any of the other color methods, and not very unfavorably with that of plain black and white. The technique I found to be apparently simple. Nevertheless, as might have been expected, I found difficulties enough therein, and to spare. The method is as yet imperfect, but I believe that it will be simplified and developed, and I call attention to it here for the purpose of recommending its trial to those who are in a position to do so.

The entire process may be divided into two parts, the first and essential one to be done by the photographer, and the second, the actual printing of the copies, being necessarily left in the hands of the skilled photo-mechanical printer. It is with the first that we are most nearly concerned, since the second can be done at any time, and in various ways. The apparatus required is the following:

1. *Camera and lens.* Of these little need be said. Any camera on a firm stand, and provided with three accurately fitting and exactly similar plate-holders will do. The main requirement for the portrait lens is rapidity of action, for reasons that will be apparent later on. An accurate time shutter is needed, since the cap can not be employed, as the front rim of the lens is occupied by the color screen holder. I employ a large portrait box, with a Zeiss portrait lens, and a Bausch and Lomb shutter.

2. *The color screens.* These are the most important parts of the apparatus, for the successful carrying out of the process depends entirely upon the accuracy of their color values. There are three of them, a blue, a green, and a red. Each one consists of two sheets of very thin and perfectly flat white glass sufficiently large to cover the entire front of the lens to be employed, and containing a thin layer of transparent pigment between them. It has been found impossible to obtain colored glass of the proper values and thinness, and the preparation of these screens is a matter of extreme nicety. Not only must the glass be without flaw, absolutely true, and of great thinness, but the pigment, which is dissolved in gelatine, must be spectroscopically correct; and the least impurity, dust or pigment granule, or air bubble, greatly impairs the value of the screen. Sets of them are sold by some of the makers of photographic plates; but I have found it impossible to obtain proper results from some of those in the market. The set that I now use were especially made for me by Mr. Ernest Edwards, of the New York Photogravure and Color Company, who has done much to develop the three color process. The screens are held in a frame that slides in a holder attached to the front rim of the lens, so that no light can reach it save what comes through the colored glass.

3. *Plates.* Iso-chromatic or ortho-chromatic plates, which give most nearly the true color value of objects are the only ones that can be employed; and of these the slowest that can be obtained are the best. I employ only the Cramer iso-chromatic slow plates. Ordinary plates are entirely useless in this process.

4. *The developer.* Any of the standard developers can be employed; but the yellow tints, that are so frequently gotten with pyro are objectionable, and it is not infrequently a source of failure in printing from the plates. I have found the amidol developer to be the best for this process.

The details of exposure are very simple. Three plates are exposed successively, one through each of the color screens. During the entire time of exposure including the time required for changing the plate holders and the color screens, and setting the shutter, the patient must keep entirely still. The slightest

movement on his part will cause the negatives not to register, as it is called; the three superimposed gelatin plates will not print over exactly the same lines, and the set is spoiled.

The method of procedure is as follows:

1. *Posing.* The part to be photographed, be it face, limb, or the entire body, should be lighted up as well as possible, but evenly, great care being taken to avoid as far as possible deep shadows and sharp contrasts. All the essential parts of the picture should be upon the same plane; for, as will be seen later on, those portions of the picture that are not in focus will not only be indistinct, as in ordinary black and white photography, but will be of wrong color also. This difficulty does not occur in copying pictures or flat objects, and pictures of perfect faithfulness can be obtained. It is inherent in life work, where it is impossible to have all points of the picture in focus at one and the same time.

The background should be of a neutral tint, not black or white, so that its exact color in the picture is a matter of no importance. Being necessarily out of focus, its color will inevitably be different from the reality.

2. *Color scheme.* A piece of paper striped with the three primary colors, must be so arranged as to appear on the negative, to inform the plate maker and printer as to which plate each one is, and to guide the latter in the exact superimposition of the plates.

3. *Exposure.* Here the main difficulty and the crux of the process is met with. Three plates are to be exposed at one sitting; the plate holder must be changed three times; and at each change the color screen must be moved, and the shutter set. Over and above this, the time of exposure is long; it takes many seconds for the light to act on the sensitive plates through the color screens. The exact time of exposure varies with a number of factors, and is a matter of nice judgment. The thickness of the color screens, the length of draw of the camera, the amount of the ever varying light, the color of the object to be photographed, all these must be taken into account in determining the length of time during which each individual plate must be exposed. This is long enough under the most favorable circumstances, and all attempts to diminish it materially have so far failed. Magazine cameras, arrangements by which one plate after the other is exposed inside the camera by mechanical means, and arrangements designed to facilitate the changing of the color screens have not proved to be of much practical value. The time occupied in these manipulations bore so small a proportion to the total time of exposure that it did not seem worth while to continue the experimentation in that direction. The slow plates and the screens necessitate the employment of the quickest possible lens; the diaphragm should be left wide open; and the process should only be undertaken at the middle hours of bright days, when the light is at its strongest.

I usually expose the plate through the blue screen first, then through the green, and last through the red. This is for the reason that the more rapid the action of the light upon the sensitive plate the greater the disturbing effect of slight movements on the patient's part will be; and though such movements are most likely to occur during the last and longest exposure, it will have less effect during the exposure through the red, the slowest of the screens.

The exact time of exposure for each plate is so variable that no exact rules therefor can be laid down In a general way I have found that the proportion between the quickest exposure, that through the blue screen, the medium one, through the green, and the slowest, through the red, to be as one, two and four. An average exposure under moderately favorable circumstances requires twenty seconds for the blue, forty seconds for the green, and eighty seconds for the red screen. In exceptional cases, with very good light and small camera draw, the time may be reduced to fifteen, thirty and sixty seconds. The reverse, however, is more frequently the case, and exposures of twenty-five, fifty and one hundred seconds must not infrequently be made. Allowing twenty seconds for the necessary changes in plate holders, screens and shutter, all of which with practice can be done with great rapidity, this means a total exposure of from 125 to 195 seconds, or from two minutes to a little over three. This might not have seemed considerable in the old daguerreotype times, but it is a very long sitting today, and difficult to obtain with our ignorant and often sickly and nervous patients. I have had failure after failure, amounting to many hundreds, simply from inability to secure the necessary quietude, in spite of all manner of mechanical devices to immobilize the patients.

4. *Development.* The plates are developed in the ordinary way, and to the usual degree. After fixing and clearing they do not differ materially in appearance from ordinary negatives for black and white printing. The pictures of the color schemes above mentioned will serve to differentiate the plates, and show the degree of correctness of the color values of the screens; in each negative of the three one color, and a different one will be cut out and be absolutely transparent. The printing value of the negatives depends almost entirely upon the sharp and complete cutting out of the colors.

The rest of the process belongs to the domain of the mechanical color printer. From each negative of a set a gelatin plate is made, and three printings, in yellow, red and blue ink are made to complete each picture. This is done on a hand press; but skilled labor of the highest kind is required, since the slightest inexactitude in the superposition of the successive printings gives a faulty impression. As a rule the yellow is printed first, then the blue and then the red. But this is not an invariable rule. Slight changes of tint can be obtained by varying the order of the printing, the color which is required to predominate being printed last. From the admixture of the colors in varying proportion, or rather, from the combination of the different layers of the semi-transparent colors, all the varying tints are obtained. There is probably no more difficult color to imitate than that of flesh, and no one in which there are more different tints, and the successful flesh color that can be attained shows the essential value of the process. Two colors, however, can not be perfectly attained, viz.: pure black and pure white. With all possible care in the selection of pigments, they can not be procured sufficiently pure to give these.

There are certain well-marked limitations to the use of the three color process, and in some cases it can not be used at all. First, we can not expect to obtain with it a sharpness of definition equal to that of plain black and white printing done from one plate. The mere fact that three printings are made from three different plates would prevent that. Second, the

prints of a series are not and can not be absolutely uniform; there are inevitably slight differences due to the varying amount of ink upon the rollers, and to the varying effect of the temperature and moisture of the atmosphere upon the gelatin plates. Both of these minor objections I hope to see removed in the future by the application of the process of stone.

Then again, not all portions of a larger picture from life can have true color values. This is perfectly possible in the reproduction of a flat object, as of a painting, the whole of which is upon one plane. In photographing from the living subject some parts of the actual picture, and all the background and accessories are necessarily out of focus. In plain black and white printing this simply means indistinctness of definition in the non-essential parts of the picture; a thing that we are accustomed to, and no longer notice. But in the color process the parts out of focus are not only indistinct, their color is not quite true to nature. This is a limitation inherent to the process, and is not of much importance from our point of view. Our object is attained if the affected skin and its lesions have the correct tint.

Finally, certain cases are entirely unsuited for the process. Children can not be so photographed, for they can not be kept still long enough; nor very old or nervous individuals for the same reason. Larger pictures of the integument of the trunk are frequently failures, on account of the inevitable lateral motion. But antero-posterior motion, to and from the camera, does no harm, and smaller sized pictures of the entire trunk can be taken with perfect success.

And now a final word as to its advantages and possible field. Larger pictures of the face, lower part of the trunk, and of the limbs, and smaller ones of larger areas of the body can be readily taken in appropriate subjects. For the reproduction on a large scale of paintings in water colors or in oils, or of casts, it is entirely suitable. It requires for its photographic part little more than the ordinary photographic apparatus, and ordinary photographic skill. So far as its cost is concerned, it is even for a single print much less than a properly colored drawing or a painting. A few dozen cost no more than one; and for larger quantities the expense compares favorably with that of the older mechanical color processes.

INEQUALITY OF THE PUPILS OBSERVED AT AN ALTITUDE OF TEN THOUSAND TWO HUNDRED AND FIFTY FEET.

Read before the Colorado State Medical Society.

BY E. T. BOYD, M.D.
LEADVILLE, COLO.

The time when it was thought possible to foretell the character of insanity by noting which was the larger pupil has long since passed away. It is also my opinion that when the influence of great altitude upon the general economy shall be better understood, the time when we, as physicians, were inclined to regard inequality of the pupils as more than presumptive evidence of serious lesions, will have become ancient history.

My reasons for bringing this subject (anisocoria) to your notice are many, the main one being to impress upon you that there may be unequal dilatation of the pupils which is in no way indicative of the lesions to which we are commonly in the habit of attributing it. So far as I can learn, but little has been written upon the subject, and that little deals with it as a symptomatic manifestation of graver troubles, such as tumor of the brain, glaucoma, and disease of the retina and optic nerve.

Inequality of the pupils may be observed in many and varied conditions. Traumatism of the globe may produce it; it is seen as a sequel of diphtheria, and may occur from peripheral irritation, for instance, ulcers on the septum of the nose, or from some intestinal trouble.

But it is not the purpose of this paper to discuss all the causes of, nor all conditions in which it may be found. I desire to treat of it as a peculiar abnormality frequently seen and in some way due to the environment of persons living at a great altitude.

Anisocoria may be seen in both male and female, children and adults, regardless of occupation or manner of living. A physician in whom I had discovered unilateral mydriasis had noticed the same thing in his three year old son. I have records of over one hundred cases observed in Leadville during the past year, and am sure that I could easily find as many more.

Believing inequality of the pupils as observed in Leadville to be wholly due to the altitude, I inferred that a like condition would be found in persons living in and about Cripple Creek and Victor. Through the kindness of Dr. Boyd of Victor, and some of his medical friends, I am enabled to say that it is so common that the doctor in writing me stated that it might be seen in one-third of the older residents—those having lived there from one to five years.

Fuchs says: "Inequality of the pupils is always a pathologic phenomenon." Noyes states: "Dilatation of one pupil of slight amount with preservation of its activity is sometimes seen as an unimportant affection which may continue for years. Its cause is unknown, but it is probably local to the iris." True, the cases to which I refer have not been under observation for sufficient length of time to enable me to thoroughly eliminate all possible connection with graver maladies. In progressive locomotor ataxia, anisocoria may appear several years before the disease is fully manifest. But, taking into consideration the comparative rarity of posterior spinal sclerosis (this, I believe, is more common at a great altitude than at sea level) and the marked frequency with which unequal dilatation of the pupils is seen in Leadville, together with the total absence of the Argyll Robertson or characteristic pupil of tabes; added to which we find the patella tendon reflex to be normal; all this disposes me to believe that there can be no connection between the cases referred to and the disease in question.

In regarding a case of unequal dilatation of the pupils, the first thing to do is to decide whether there is myosis in one eye, or mydriasis in the other. In other words, which, if either, is the normal pupil. In the following cases this has been done as nearly as may be, by noting carefully the reactions to the various stimuli, and by comparing them with apparently normal pupils observed under like circumstances and conditions. I think that there can be no doubt but that results warrant the statement that they are all cases in which unilateral mydriasis exists.

For the purpose of avoiding too frequent repetition, I will speak in a general way concerning features which in the main are common to all the cases

observed. From none could there be elicited aught but negative history, either immediate or remote. All of the subjects are in excellent health. The men are moderate drinkers and smokers; but few of them have had visual disturbance, and in these cases the trouble was due to some minor refractive error. Rarely in these cases have I found anisometropia which may occasionally be the cause of anisocoria. Pupils reacted consensually, also responded normally to light; convergence and accommodation in all cases except Nos. 6 and 9; the departure from normal in these cases consists in the peculiar reaction first described, I believe, by Gowers, as follows: "Immediately upon exposure to the light the pupils contract; light stimulus being continued, the abnormally dilated pupils rapidly regain their former size."

In all cases that I have had the opportunity of observing frequently, I find that there are times when the pupils are of equal size. The exacerbations can not be associated with excesses of any kind. In about one-half the cases seen the right pupil was the larger, while in the remainder the reverse obtained. The difference in size ranged from one-fourth to three-fourths times larger than the smaller pupil. Incidentally I may mention that I have seen the same condition of unequal dilatation in dogs. Paresis or paralysis of the fibers of the oculo-motor nerve supplying the sphincter of the iris, irritation of the cilio-spinal center of the cervical spinal cord or the cervical sympathetic supplying the radiating fibers of the iris will produce dilatation of the pupil. As long as the third nerve functions properly, presupposing the optic nerve and retina to be intact, the reaction to convergence and accommodation will be normal. The accommodation unimpaired, with normal reaction of the pupils to convergence and accommodation, I think it safe to conclude that the unilateral mydriasis is not associated with impaired function of the third nerve, hence we naturally look to the sympathetic system for the cause of the abnormality.

The idea is quite general that there is a condition of enervation in persons residing in Leadville or at a like altitude. Knowing of this impression, I have employed the best means at my command to learn the truth or falsity of it. I find that the physicians of that district, almost with one accord, believe that the conditions dependent upon altitude cause innervation rather than enervation. The laboring men interrogated upon the subject bear out this opinion. Fifty miners, taken at random, being asked as to their general feeling of well being and their ability to do work as compared with a lesser altitude, forty-five of them thought they could do the same amount of work with greater willingness and less fatigue after having accomplished it than at a lesser altitude, while five believed the reverse. It should be stated, however, that the five last mentioned experienced difficulty in breathing. Most people coming from sea level to an altitude of 10,250 feet, become exceedingly short of breath upon slight exertion, and may have tinnitus aurium and a feeling of giddiness, because they are accustomed to breathing a much denser atmosphere and their lungs are not equal to the task of obtaining the requisite amount of oxygen from the rarefied air, and for a time there is enervation. If the lungs are healthy, a residence in Leadville will soon bring about a compensatory increase of lung capacity. This, with increased circulation of the blood, enables one to obtain all the oxygen required and he will no longer be handicapped by dyspnea. When the lungs and circulation shall have adjusted themselves to the conditions, the depressed feeling he first experienced is supplanted by one of exhilaration.

The atmosphere being practically devoid of dust particles and moisture, the light is very intense and we would naturally expect to find contracted rather than dilated pupils; but I find cases in which there is bilateral mydriasis, and this fact but serves to confirm me in my theory of the cause of the anisocoria, namely, that it is due to hyperactivity of the nervous system, which is especially manifest in the cervical sympathetic. I believe that this hyperactivity stimulates equally the radiating fibers of the irides to contract and I account for the unequal dilatation upon the hypothesis that there is a difference in density of the radiating muscular fibers, and it may be of the sphincters also, of the irides.

I further believe that this tendency to excessive dilatation of the pupils is common to those living at so great an altitude and that in cases in which we do not find the anomaly the power of inhibition is sufficient to overcome it.

Case 1.—J. C., age 50, bill poster, resided in Leadville eighteen years. Right mydriasis.

Case 2.—T. C. W., age 25, mining man, lived here two years. Right mydriasis.

Case 3.—H. T. B., druggist, age 25, resided here five years. Right mydriasis.

Case 4.—J. H., age 53, lived here eighteen years. Right mydriasis.

Case 5.—C. H. M., age 30, civil engineer, resided here two years. Left mydriasis.

Case 6.—J. J. M., age 46, furniture dealer, resided here eighteen years. Left mydriasis.

Case 7.—S. G., age 27, salesman, lived in Leadville three years. Left mydriasis.

Case 8.—T. J. W., age 32, physician, resided here two years. Left mydriasis.

Case 9.—T. H., age 34, commission merchant, lived here eighteen years. Left mydriasis.

Case 10.—A. J. B., age 43, saloon man, lived here five years. Left mydriasis.

Case 11.—J. S. B., age 40, mining man, resided here eighteen years. Left mydriasis.

Case 12.—H. S. J., age 21, mining man, resided here one year. Left mydriasis.

Case 13.—C. H. B., age 24, dry goods merchant, lived here ten years. Right mydriasis.

Case 14.—Dr. A. J. McD., age 40, resided here seven years. Left mydriasis.

Case 15.—Ed. L., age 29, barber, lived in Leadville four years. Left mydriasis.

Case 16.—G., age 35, physician, resided here three years. Left mydriasis.

Case 17.—W. W. W., age 40, stationary engineer, resided in Leadville six years. Left mydriasis.

Case 18.—B., age 30, plumber, lived here four years. Left mydriasis.

Case 19.—D. A., age 28, telegraph operator, has lived in Leadville five years. Left mydriasis.

Case 20.—E. S., age 27, housewife, resided here six years. Right mydriasis.

A SIMPLE, PAINLESS AND PERHAPS NEW METHOD OF VACCINATION; DENUDATION VERSUS SCARIFICATION.

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This method may fall under the category of "nothing new under the sun," but I have not been able to find that the simple principles followed have ever been put into practice before. The idea of perfecting

a new method of preparing the skin for inoculation was brought to my mind because of my sympathy for little children who are frightened and even given pain by the old, scarification plan.

The protection from absorption possessed by the skin is due to the epidermis and chiefly to the horny layer. This being removed, or even scarified, permits absorption. An excoriation or denudation is necessary to local infection in most cases, though follicular inoculation has been credited. Given, then, an impermeable covering, it was but necessary to find an agent which would dissolve or disintegrate the upper layers of the epidermis without pain or fright to the patient. Salicylic acid in glycerin was tried and discarded. A saturated solution of caustic potash in a 20 per cent. solution of cocain was effective, though the final product of the mixture was uncertain. A light application of the caustic potash stick was tried, being neutralised with acetic acid as soon as burning was felt.[1] This was effective, but acted rather severely, and left some pigmentation from slight inflammation. Finally, ordinary liquor potassæ was tried and found to meet every indication.

The elder Hebra denuded his old eczema patches with green soap and rubbing, and this softening action of potassa has long been well known. We use liquor potassæ in mounting scales and hairs for microscopic examination, and it rapidly disintegrates them. The pigmentary deposits in the epidermis are easily removed after the application of liquor potassæ. Officinal liquor potassæ is a 5 per cent. solution, that in common use becomes stronger through evaporation.

The procedure of preparing the surface for vaccination is as follows: The point to be vaccinated is cleansed. A piece of cotton as large as the desired denudation is wet with liquor potassæ and laid on, or a little of the fluid is put on with the bottle stopper. After two or three minutes, or as soon as sliight burning is felt—it usually does not burn at all—the cotton is removed, if it was used, the soap mixture which has formed with the skin secretions is wiped off with a piece of wet cotton, though this is not essential to success, in order to render the next step easier. Then an ink eraser, a tooth-pick of soft wood, a pencil rubber, a piece of gauze (the quickest) or a piece of damp cotton is used to rub away the softened epidermis. The friction is slight, the pain is only a little stinging when the sensory nerve filaments become exposed. We obtain in a few seconds a moist, shining surface, often a clear view of the papillary vessels but no bleeding. The vaccine is now applied and let dry on in the usual way.

The advantages of this method are its practical painlessness and the absence of terrifying instruments, such as the "Neptune's trident," the lancet or sewing needle. Further, bleeding is a bar to successful inoculation. By scarification it is difficult to stop short of bleeding, while with denudation bleeding is almost impossible. A little girl aged 6 years, vaccinated herself by my method. There is also less danger of an undesired infection from instrument or epidermis when this method is employed.

As to the results: A good lymph will "take"; an unreliable one will not. Inoculation was successful in as many cases vaccinated by denudation as by scarification. Within three days one young man developed twenty-five distinct and characteristic vesicles in an area three-fourths of an inch square. Others "took" in the usual way. Abortive lesions formed in other cases just as after the old method.

One doctor vaccinated seven children in an institution at his first trial of my method. With three he did not wash off the liquor potassæ before denuding; in four he did. Every one of the seven "took." The doctor was fortunate in his lymph. Other physicians have found the method successful. Many cases could not be followed up. Increased experience with the method and the reports of others demonstrate probably a larger percentage of success than is possible with scarification.

Ordinarily there may be one objection to the method of denudation; it is slower, but the time necessary to subdue a refractory child for scarification will often amount to more than two or three minutes. Again, if we draw blood in scarifying, this must all be removed and further flow checked to insure a result; this takes time. For those who wish to save themselves annoyance, or to spare little children and nervous people pain and fright, the method described is preferable. Sympathy and convenience justify its use even if the whole matter is simple and small.

Denudation offers a field for dermic medication which may reduce the necessity for so much use of the hypodermic syringe. I have not experimented here except with cocain and eucain solutions. I obtained their characteristic effects. Something similar to this has been used for the dermic absorption of drugs, viz., the formation of a blister which resulted in the denudation of an absorbent surface. A denudation maintained with moist rubber tissue might spare some ill person frequent, painful thrusts of the hypodermic needle, where such introduction of drugs should be practiced.

NOTE.—This method was demonstrated to the Atlanta Society of Medicine on the evening of Sept. 21, 1897, a report of which will be published. Most of the experiments with the method were made since September 1 of this year, although slight trial of other agents was had some months ago.

311-312 Fitten Building.

[1] Since writing the above the caustic potash stick was tried again, in the absence of a supply of liquor potassæ. A minute drop of the deliquescing potash was put on, gently smoothed out and immediately wiped away with damp cotton. The denudation was perfect, the pain nil and the procedure even more rapid than scarification.

THE DRY METHOD IN INTRA-UTERINE SURGERY.

Read before the Illinois State Medical Society.

BY EDWIN WALKER, M.D., PH.D.

EVANSVILLE, IND.

Last year I read before this society a paper on the abuse of water in surgery (AMERICAN MEDICAL ASSOCIATION JOURNAL, No. 26, 1896). Some of the disadvantages of its excessive use in both septic and aseptic cases was pointed out. It was urged also, that outside of hospitals, where we have to rely on unskilled help to prepare the water, it is often used from vessels improperly cared for, and is often the source of infection. On the other hand, there is no longer a doubt that ideal asepsis may be attained by the dry method. The action of the water, though it be pure and sterile, exercises an unfavorable influence on healthy tissues, while antiseptic solutions often injure them and markedly reduce their ability to resist infection. It is practically settled, that septic wounds can not be rendered aseptic by any washing, or the use of antiseptics, no matter how strong they are used; all we can do is to render the conditions such as to give the tissues a chance to exclude the germs.

It is not intended to inveigh against water used to cleanse the parts before operation, for it is here indispensible, but after the operation is begun it should be dispensed with; nor is it denied that in some septic cases, as ulcers or abscess cavities, it may be mechanically impossible to remove sloughs or other detritus without water. If efficient drainage is established, such cases will not be numerous.

In this paper I will discuss the dry method in intra-uterine work. I believe there has been almost a universal tendency in this direction; personally I have gradually used less irrigation, and now have almost entirely given it up, and my results have since been much more satisfactory.

The most frequent occasion for invasion of the uterine cavity, is to remove the products of conception, and curettage for indometritis, and in these cases I have most extensively employed the dry method. It has been almost the universal custom in these cases to irrigate with plain water, or some antiseptic solution; this is directed by all the standard works on gynecology. Irrigation is superfluous. After a thorough curettage for endometritis or the removal of the placenta, we have a fresh wound which is to be cleaned, the blood wiped off just as from an incision. This can be more efficiently done by wiping with sterile gauze than in any other way. Irrigation is often positively harmful. Who has not seen localized peritonitis after irrigation of the uterus, from passage of fluid through the fallopian tube? Besides, the water or antiseptic does in some degree impair the exposed tissues, and is often the carrier of infection. It is a rule that the simplest method, the one which requires the employment of the fewest things and the least handling, is the one which will most frequently attain asepsis. Water or fluids have to be poured from one vessel to another, and in many ways exposed to contamination.

By the dry method these cases are very simple. In curettage for endometritis, the patient is put in Simon's position and the vagina scrubbed with liquid soap. This is washed out with creolin, and followed by plain water. It is then thoroughly dried with sterile cotton, dilated and thoroughly curetted as usual. When this is done the cavity is thoroughly wiped out with sterilized gauze, the wiping being repeated several times, until the gauze comes out but slightly tinged with blood. Then it is wiped out with iodoform gauze, and packed with the same. I have found it a great help to have the gauze, both plain and iodoform, cut in strips and packed in a glass tube (a large test tube). It is sterilized in these tubes, and drawn directly from them as placed in the uterus, without touching anything but the dressing forceps. If the case is one of abortion, and part or all of the ovum is retained, the same method is followed, except that Martins' curettage forceps are used to facilitate the emptying of the organ. These are dull, smaller and less clumsy than the ordinary placental forceps, and are much more convenient and efficient. The wiping and packing is the same, except that it has to be more frequently done, the hemorrhage is greater, and there are more shreds of tissue to be wiped out. I do not suppose that by this process, we really remove all the membranes; I doubt if we ever do, but this is not necessary, for in aseptic treatment healing will be complete. If the os is patulous and the abortion is as late as the fourth or fifth month, the fingers may be introduced and will greatly aid in the removal of the placenta. I have, however, found the forceps a great aid in these advanced cases, and have never done any damage with them. I have in two instances emptied the uterus for vomiting in pregnancy. These cases had both advanced to about the eighth week. The vomiting was so severe and constant, that after consultation it was decided that farther delay would greatly endanger life. The os was dilated as usual, the ovum was seized with forceps and stripped out, the membranes being extracted in pieces. The cavity was then curetted, wiped out and packed. In neither case did the temperature rise over 99.6, nor the pulse above normal. In both cases the nausea ceased at once, and neither was sick from the anesthetic. It is interesting to note here, that one patient became pregnant a few months later, and was almost entirely free from nausea during her pregnancy. I have a number of times emptied the uterus in a similar manner, before fetus was expelled, after finding that abortion was inevitable. The advantage is, that the patient is spared much suffering and hemorrhage, and the danger is very much less than by waiting for nature to do the work.

I can not leave this part of the subject without a not of warning. It is understood that this method is free from danger only in the hands of those who have sufficient skill to do it properly, and have learned by careful study and experience to do aseptic work. Unless these manipulations are done with care and under strictest asepsis, many accidents will occur. But these are chargeable to the individual, not to the method.

When the contents of the uterus has become septic the method should be the same; dilate, remove contents, wipe out and pack. I feel that my experience in abortions justifies me in commending it as the best and safest. In puerperal cases, my experience has not been sufficient to speak authoratively, but I do not believe it will prove an exception. In one case of missed abortion, my colleague, Dr. Owen, removed a septic ovum of three and a half or four months, in this manner. The patient became pregnant, the fetus for some reason died between the third and fourth month. Later she had fever. This continued three months. When she came under the doctor's care she was much reduced by long pyrexia; examination revealed the condition. She made a rapid recovery. This case was an excellent test; notwithstanding the ovum was torn out, and not a drop of water was used, the result was perfect. In ordinary cases where the fetus has been expelled and the placental membrane remains, and fever has set in, the dry method leaves nothing to be desired.

The only cases in which there is any doubt of its efficiency, are the puerperal or later abortions, in which the uterus is markedly affected and a large amount of pus or septic material is found. These are the cases in which frequent or constant irrigation has been recommended, and in many cases is doubtless successful. In private practice this is a very difficult method to carry out. It is not safe to trust it to a nurse, and it requires almost constant presence of the physician, and besides, in many cases it fails. I believe the manual disturbance in these cases, is, in many instances, bad. The barrier against infection, which nature throws out around any area to shut off systemic infection, is often broken down by such frequent interference. It may be urged that the packing would be, but this latter need not be so often done, and if carefully executed would not do as much violence as the

intra-uterine douche. If this could be replaced by packing which would not require removal oftener than once or rarely twice in twenty-four hours, it would be a great gain. The gauze takes up much of the discharge and keeps the os open, thus securing drainage. I have recently used the packing in two cases, one of which recovered, but in neither case was it a fair test, as it was not begun early, nor was it used alone.

A CASE ILLUSTRATING THE VALUE OF SYMPHYSIOTOMY WHEN A TUMOR OBSTRUCTS THE PARTURIENT CANAL.

Read before the Denver and Arapahoe County Medical Society, February, 1897.

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PART I.—BY DR. ROVER.

INTRODUCTION.

Based on two cases of symphysiotomy which occurred in my private practice (one operated on by Dr. Gustav Zinke of Cincinnati, and the other by Dr. T. M. Burns of Denver), and both of them successful to mother and child, I desire to give expression and emphasis to the benefits derived from said operation.

The operation, though a feasible one, does not suggest itself to every medical mind interested in any particular case. The patient was seen repeatedly by three physicians during the latter part of her pregnancy and no unanimity of opinion could be reached; not even after she was taken in labor did the various counsel agree. One favored a Porro, the second a craniotomy, I pleaded for a symphysiotomy. Why this discrepancy of opinion? Simply because the respective indications, benefits and limitations for either of these operations are not definitely fixed.

It may be said that under favorable conditions and at the hands of skilled operators, the death-rate has been almost *nil*. Pinard lost but one mother in his first twenty operations, and Sweifil one in forty-three cases. The fetal mortality, including those that die shortly after birth, runs higher; according to Neugebauer as high as 20.5 per cent.

Cæsarian section, although more saving to child life, is more dangerous to the mother. Induced premature labor under approved modern methods with its low maternal death-rate, is more hazardous to the fetus than is a symphysiotomy.

Where a symphysiotomy is possible and the child *in utero* is viable, we should never think of performing a craniotomy. In this connection I recall the teachings of an old professor (Dr. Tate of Cincinnati) who declared that an unborn child, whose life is being held at stake, may prove to be an unborn Milton or Shakespeare; hence the conclusion that if other safe measures can be instituted the fetal life is not to be sacrificed.

The woman's powers of locomotion are not necessarily crippled by slight looseness of the joint, and as a rule, under a rigid asepsis and with complete immobilization of the pelvis during convalescence, the restoration of the symphysis in women not previously infected is complete. In both of my cases the union was perfect, in the first, great precautions were taken to secure the immobilization of the pelvis by the use of both adhesive plaster and a jacket of plaster-of-Paris; whereas, in the second case only a strong linen many-tailed bandage held the parts together.

The operation is best adapted to the symmetrical rachitic pelvis, and should not be undertaken when the true conjugate is less than two and five-eighth inches. As much as two to three inches of separation may be secured without risk of injury to the sacro-iliac symphysis. Version should not be resorted to when the head can be made to engage.

Case report.—Mrs. K., German, aged 35 years, married seven years, childhood history negative, no rachitic tendencies.

Her labors: 1st, at nine months vertex, terminated by craniotomy after nine hours of labor; 2d, at nine months vertex, terminated by podalic version after five hours of labor; 3d, at eight months breech, terminated by inducing labor with the catheter. Catheter was in place six hours before labor set in, the labor lasting six hours; 4th, occurred under my supervision Aug. 10, 1895. When consulted beforehand I advised a symphysiotomy, but the patient had been instructed by the physician in charge of her previous confinements that a premature labor induced at the seventh month, and the mother during her pregnancy resorting to a vegetarian diet (particularly fruit), would offer the best hope for a successful issue on the part of child and mother. As in the third pregnancy, the catheter was introduced but remained in place for two days before labor set in. The labor lasted six hours and the presentation was a breech. Unfortunately prolapsus of the cord occurred early in the labor, and as its result a dead baby was born; 5th, this was terminated by the symphysiotomy reported in this article and resulted in saving both child and mother.

The puerperal state in each instance was normal, and with the exception of the last she was up on the eighth day. Her various pregnancies were all normal.

History of tumor.—Patient never felt any tumor or symptoms from it. At the first labor (which took place in Germany) the attending physician diagnosed a contracted pelvis due to the sacral prominence projecting abnormally forward; at the second labor she had the same physician and consultant. There was nothing new with reference to the obstruction. At the third labor she had the same physician. I advised symphysiotomy during the fourth, but by request induced labor at seven months. All I could make out was a dystocia due to abnormal size of the promontory. In all of the first four pregnancies the child was still-born but living until artificial aid was used.

Her last labor, the fifth, began July 27, 1896, at 7 A.M., and the waters broke at 2 P.M. I saw her at 3 P.M., and a little later the other two consultants were at the bedside. No unanimity of opinion, as before stated, could be reached, each of the three physicians contending for his choice of operation. The family decided against the Porro; the vitality of the child decided against a craniotomy, and hence about 5 P.M. Dr. Burns was called in to perform the symphysiotomy, he advocating this measure. Her previous pregnancies, with their respective terminations, warranted the step taken, and today there is happiness in a Denver home because of such a proceeding.

PART II.—BY DR. BURNS.

THE OPERATION, SUBSEQUENT TREATMENT AND RESULTS.

By abdominal palpation, the presentation was found to be a vertex, and the position a left occipitoposterior. The forehead was prominent on the right side above the brim, an indication of some obstruction to the engagement of the presenting part.

By pelvimetry, the distance between the anterior superior spines was ten and one-half inches, the crests eleven inches and the external conjugate seven inches. These measurements indicated that the dimensions of

the pelvic inlet were normal, except slight diminution of the internal conjugate.

By vaginal touch (patient under chloroform for introduction of hand), the pelvic canal was apparently normal, except for the presence on the upper half of the anterior surface of the sacrum of a tumor, seemingly the size of a child's head and of a consistency similar to a chondroma or a fibroma.

The opening at the brim was barely large enough to allow the passage of my closed fist (a circumference of about nine and one-half inches). The cervix was found dilated to the size of the space not occupied by the tumor at the inlet.

Considering the size of the head, the difference which symphysiotomy would make in the dimensions of the inlet, and the more or less compressibility of the tumor, shown by the history of the previous cases, I stated that with symphysiotomy and the careful use of the forceps a living child could be delivered.

The operation.—The abdomen, vulva and vagina were rendered aseptic. The instruments were sterilized in a wash-boiler. The patient was chloroformed and placed on the kitchen table; a Kelly pad was formed of an oilcloth, the head of the table being raised by a brick under each leg, and the hands of all were rendered aseptic. A medium sized straight Peaslee's dilator was passed into the bladder to deflect it away from the pubic joint. A longitudinal incision was made through the muscles over the upper part of the symphysis, and through this incision the index finger was passed behind the pubes. By a straight and a curved bistoury the joint and sub-pubic ligament were incised. At times cutting from before backward to better prevent any injury to the soft parts was employed. Then the pubic joint was carefully separated, while the assistants held the thighs. This was followed by rather severe venous hemorrhage, which was arrested by hemostatic forceps and absorbent cotton compresses dipped in hot water. The forceps were applied to the head above the inlet. As traction was made separation of the symphysis to the extent of two to two and one-half inches was required before delivery could be effected, although the tumor flattened somewhat. (During delivery the anterior cervical and vaginal wall prolapsed, but were replaced and held in position. There was no tear in the perineum.) After the delivery of a small placenta, the Peaslee dilator was reintroduced and held as before, while the edges of the pubic joint were brought into apposition by pressure on the great trochanters. Then, after the hands were made aseptic, the muscular incision was closed by catgut sutures and dressed with boric acid, iodoform gauze and absorbent cotton. A many-tailed thigh and hip bandage of linen crash, and a many-tailed abdominal binder of the same material, reaching from the breasts to below the great trochanters, were the only means used to keep the edges of the pubic joint in apposition. The double bandage thus formed about the hips is all that is necessary to hold the joint in place, and being many-tailed allows a portion of it to be loosened and the wound dressed without the joint being disturbed.

After the operation the patient's pulse was 96. The child, a male, was somewhat asphyxiated when born, but was quickly resuscitated by the Forrest method. It weighed six and one-half pounds.

The puerperal history.—The temperature and pulse were highest on the afternoon of the first day, viz., 100.2 degrees F. and 100, respectively. During the next twenty-eight days the temperature varied between normal and 99.5 degrees F., and the pulse between 96 and 72. The bowels were moved by an enema on the third day, and subsequently kept active by enema and compound licorice powder. The urine was drawn twice on the first day, but after this it was spontaneously voided without pain. The lochia was slight and continued three weeks. On the third day it became offensive, but the odor disappeared the next day from the use of the vaginal douche Twice on the twelfth day a large amount of dark blood was expelled from the vagina, each time just after the bowels had moved. This was probably due to the patient being continually in the horizontal position. The vaginal douche was used the first three weeks. After-pains were present on the first two days. Pain and tenderness were absent except slight headache and pain referred to the hips at times, and some tenderness about the wound.

The wound was examined on the fourth day, and was found to be tender and red. This resulted from the catgut sutures being septic, or the lochia coming in contact with the wound when the patient turned on her side, or the mechanical irritation caused by the change of posture. The wound was redressed after being bathed with bichlorid. On the fifth, sixth, seventh, eleventh and fourteenth days the wound was cleansed by the use of alcohol and hydrogen dioxid, and dressed with an ointment (composed of equal parts of bismuth and castor-oil) and then iodoform gauze, etc., applied. On the seventh day the sutures were removed because they were partially absorbed.

The position of the patient was the dorsal till the third day, when she turned onto her left side. This was accompanied by slight pain. The patient was allowed to continue this position at times because it was believed that the lateral posture would keep the joint in as good apposition as if she was in the dorsal decubitus, better allow the lochia to escape and especially relieve the severe strain and worry which one constant position causes, and the only harm that could result was considered to be infection of the wound from the lochia, and this could be prevented by not placing the patient fully on her side until the wound had completely healed.

On the fifteenth day the patient sat up in bed. On the seventeenth day she walked across the room and sat on a chair twenty minutes, but felt motion and pain in the joint when walking. On the twenty-fourth day she was up five hours, could stand straight, but her right hip appeared lower and she seemed to rest her weight on it; she could feel no motion at the joint, but at times when walking this right hip seemed to drop. On the twenty-eighth day the patient resumed her household duties with nearly her usual strength, and no disturbance of the pelvis.

A pelvic examination four months after the birth of the child, showed the cervix to be a little low and bilaterally lacerated. Bulging from the upper part of the anterior surface of the sacrum was a hard round tumor, which in size and shape could be likened to a flattened orange. All of the sacrum which could be felt was of normal size. I do not believe that this condition is due to a bulging of one of the sacral vertebræ from spondylitis because of the shape and the fact that during labor the tumor flattened. By abdominal palpation nothing could be found because of the tenseness of the muscles. The distance between the tumor and the pubic symphysis was between two

and two and one-half inches, estimated by separating the index from the middle finger at the inlet and then measuring this separation by the tape after the hand was withdrawn.

In conclusion, we may say that this case not only illustrates the value of symphysiotomy when the pelvic canal is obstructed by a tumor, but also that even wide separation of the symphysis is not necessarily followed by any after-effects; that the patient need not be kept in the dorsal decubitus, and that many-tailed linen crash bandages are all that are necessary to keep the joint in apposition. Further, as stated in my previous article, this operation can be as successfully performed in a private house as in a hospital.

I wish to here add that in the "Transactions of the Colorado State Medical Society" for 1896, can be found two cases of symphysiotomy reported by me and that I have subsequently delivered the first of these two patients successfully by means of a very easy high forceps extraction.

FATTY HEART WITH BRADYCARDIA, WITH A REPORT OF A CASE.

Read before the North Chicago Medical Society, October, 1897.

BY CHARLES J. WHALEN, M.D.

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CHICAGO, ILL.

The subject of fatty heart should be of the greatest importance to examiners for life insurance companies, and one that should be very thoroughly understood by the medical practitioner, for a great deal of misery and unhappiness has been caused by careless or thoughtless medical opinions expressed regarding presumed fatty degeneration of the heart.

I can recall more than one instance of men going about with the greatest caution, firmly impressed with the idea that following the slightest shock of exertion they were to die suddenly. This impression was gained from the ignorance of doctors, and on examination of the heart it would be found in very good condition.

By the name "fatty heart" we mean two quite distinct conditions, one an abnormal deposit of fat in the heart, and the other, a fatty degeneration of the muscular fibers.

The first consists in an increase in the amount of fat that is normally found in the sub-pericardium after the sixth year of life. The connective tissue becomes infiltrated with oil globules, and it always occurs in great general corpulency. It is of little importance when confined to the sub-pericardial layer, but when it extends to the connective tissue, that links together the muscular fibers in the myocardium, it produces weak spots in the cardiac walls which greatly reduce the heart's force, and is apt to be followed by serious results.

In fatty degeneration the sarcous substance itself is transformed into fat globules, and comes from the decomposition of albumin in the muscular cells. The structure of the heart degenerates and portions are transformed into fat granules. It is within the substance of the muscle and along the longitudinal fibers that the transformation into fatty material first takes place, the myocardium being particularly prone to undergo fatty degeneration.

If the deposit of fat is localized the heart has a mottled appearance, but later, when the heart becomes generally involved, it has a "yellow brown or buffy color," the tissue may become so utterly destroyed that they break down under pressure.

Etiology.—Fatty heart is occasionally observed in early adult life, and has been found even in the fetus; as a rule it should be remembered that youth is not the season of fatty heart. Even middle life is not very frequently its seat, but it is found in people past the meridian of life, who have broken themselves down with drink and debauchery. It is much more frequent in males than in females. It is ascribed to imperfect oxidation of the nitrogenous constituents of the muscular fiber produced by general debilitating causes, such as wasting diseases, failing nutrition of old age, phosphorus poisoning, prolonged fevers producing parenchymatous degeneration. Occupation plays a very important part in its causation. A man who leads an active life up to 40 years of age, and suddenly changes to a life of idleness, is very apt to suffer from fatty heart. Other causes are obstruction of the coronary arteries, compression of the heart from abdominal tumors causing degeneration and valvular disease, especially in cases where there is great hypertrophy of the cardiac walls. Alcoholic abuse and the taking of great quantities of fluid by a fat person certainly predisposes to fatty heart; too much stress should not be laid on obesity as a predisposing cause.

Symptomatology.—"Fatty degeneration of the heart" always plays a far larger part in popular speech than it does in reality. It is a fact that many patients complain of a peculiar feeling, a sense of weakness, of suffocation or fulness under the sternum, pain or numbness in the arms and a cold creepy feeling down the back; later in the disease there is precordial pain, dyspnea, attacks of syncope, which may simulate apoplexy, except that it is not followed by paralysis; angina pectoris and cardiac asthma may come on, and death may follow with increasing dyspnea and general edema. I have seen three cases in which postmortem revealed well marked cases of fatty heart, which during life presented no special cardiac symptoms. The physical signs are as uncertain as the symptoms; there may be found an increase in the area of cardiac dulness, a small and sometimes irregular pulse, indistinct first sound, accompanied by a generally weak condition of the entire organ, although in pernicious anemia there may be quite a strong and perfectly regular pulse up to death in spite of the most marked fatty degeneration. A pulse permanently slow or permanently fast, is a sign of great value, although either may be found in a perfectly healthy person. I have seen a case in which the heart beat was forty-eight per minute; a condition which had been noted by other physicians during his early adult life; he also claimed that a brother had a similar pulse rate. Arcus senilis may occur with or without fatty degeneration of the heart.

Diagnosis.—Our power to diagnose the disease during life has not kept pace with our ability to recognize it after death. In many cases the diagnosis can only be arrived at by careful consideration of the whole aspect, and then it is often a matter of conjecture rather than of certainty; yet, how often do we see a diagnosis made in an off-hand manner by men not remarkable for the extent of their information or their skill in diagnosis. We can best arrive at a probable diagnosis by first excluding other possible diseases, and combining the symptoms with the history, we may reasonably suspect fatty degeneration if we have

a patient past middle life who is the subject of gout, alcoholism or a wasting disease, if in addition to the above we find atheromatous changes in the blood vessels, or degeneration elsewhere, such as arcus senilis, together with weak, irregular and at times intermittent permanently slow or fast pulse. Presence of angina pectoris, edema of the feet, Cheyne-Stokes respiration, with pseudo-apoplectic attack, all tend to confirm a suspicion of fatty heart.

Prognosis is always unfavorable, but by regulated habits and medical treatment life may be greatly prolonged. Between 80 and 90 per cent. of cases of fatty heart die suddenly.

Treatment.—In fatty infiltration the treatment is practically the same as for obesity. The most satisfactory method is by reducing the quantity of food taken in twenty-four hours, together with plenty of exercise. The patient should be allowed to partake moderately of a mixed diet. The foods rich in albuminoids should be diminished least of any, because it would be sure to work injury to the system if it were supplied in too small an amount. The fats and starches are more potent in increasing adipose tissue and in shielding from oxidation the fat already stored up in the body. A varied diet is extremely desirable for one who is corpulent, and we should exclude neither fat nor starch fully from the dietary, but merely limit the amounts to be taken. Every case must be treated as an individual one and receive careful consideration. I know of no remedy taken internally that has the power of reducing fat, unless it is phytolacca, which has been so highly recommended by numerous members of the profession. My experience has taught me not to look upon it with much favor.

In fatty degeneration a number of remedies have been recommended; some are very useful, such as arsenic or iron. Whatever treatment is adopted must be continued for some time. There is no plan of treatment that can restore the degenerated muscular fibers. The principal thing is to improve the tissue making power of the blood; this is best accomplished by iron, cod liver oil, strychnia, nutritious diet, fresh air and out-door exercise; violent exercise or mental excitement are to be avoided. In cases where there is no atheromatous degeneration, the heart muscle can be greatly strengthened by having the patient take moderate exercise, but never to the extent of causing dyspnea. In this way the myocardium is strengthened and its functions are increased. Blisters applied over the precordium have been known to give relief when cardiac stimulants have failed. Dr. B. Robinson, in a case where other remedies had failed, was able to obtain marked temporary relief from dyspnea by the Paquelin cautery applied over the precordium at sixty or seventy points.

In conclusion, I give briefly a history of a case of fatty heart with bradycardia followed by death five weeks after beginning treatment.

Jas. R., American, 54 years of age, of medium height, rather spare build, weighing 140 pounds, fairly well nourished, came to me August 23, 1895, and gave the following history: Had been a free drinker of malt liquor and spirits; never had rheumatism or venereal disease; for two weeks he had been having dyspnea on exertion, especially when going up stairs, some cardiac palpitation and considerable edema of the feet and legs. Examination of the chest revealed the signs of a dilated heart; apex beat was one-half inch outside the nipple line and in the sixth interspace. Heart sounds were not as intense as normal and were heard loudest four inches below the nipple, and were audible at the outer border of the mammary region and heard almost as distinctly at the sternum. In other words, the sounds at the apex could be heard over an area of nine inches, from the sternum to the axilla, and from the nipple to the eighth interspace, a distance of four inches, showing we had considerable hypertrophy of both the right and left ventricles.

His circulation was poor, as evidenced by the blue color of the hands and feet; pulse was slow, regular and very soft, and beating thirty-two to the minute; no atheromatous changes could be detected in the arteries.

I made a diagnosis of fatty heart and forbade him leaving the house, placing him upon the usual heart tonics, nitroglycerin gram 0.0006, t. i. d., nux vomica, with small doses of digitalis every four hours, together with iodid of potash in 0.32 to 0.65 gram doses. There were signs of improvement for a few weeks, his pulse rate having increased at one time to forty-eight beats per minute, but very little increase in strength was perceptible. By September 25, one month from the beginning of treatment, his limbs had become so edematous that I was obliged to make several scarifications, which afforded him marked temporary relief.

He disregarded my instructions and had continued his occupation up to the day before his death, which occurred without any premonition October 1, just five weeks from his first visit to me. He probably would have died at his post except for the extreme methods to which I resorted to prevent his leaving the house on the day before his death. I afterward learned that he was at his work every day except that on which the scarification was made and the one just preceding his death.

Postmortem was made three hours after death; rigor mortis present; internal organs were found normal, excepting the heart, which was extremely large, weighing twenty-two ounces; from the upper portion of the auricle to the apex it measured seventeen and one-half centimeters; lateral measurement fifteen centimeters, and six centimeters in thickness. All the valves were found competent and thickened in substance. The cavities were all dilated, a blood clot being found in the right ventricle. No atheroma of the coronary artery were found. Ventricular walls were slightly hypertrophied. The heart had a mottled appearance due to an excess of fat in spots. The muscular fibers were found diminished and much degenerated.

REPORT OF TWO CASES OF HEART DISEASE.

Read before the Mississippi Valley Medical Association, Oct. 7, 1897.

BY JOHN M. BATTEN, M.D.

PITTSBURG, PA.

W. H. M., age 68 years, married and the father of two children; was always temperate and correct in his habits. He was without any hereditary taint and belonged to a long-lived healthy family. He had never been sick but once, about fifteen years ago, when he had a severe attack of acute pneumonia. Since then he has been affected with a cough which annoyed him but little till a year ago, when it became more noticeable. I prescribed for it two or three times during the last year but the cough did not improve.

May 28, 1895, at 11 P.M., I saw him professionally. There was extreme dyspnea; clothes about him in bed were wet with perspiration. His pulse was very weak and rapid, extremities cold, countenance anxious and heart feeble. He had been at a lodge meeting that evening and felt the attack coming on while there. It was with great difficulty, with the aid of a friend, he was enabled to reach his home three squares away. I prescribed for him digitalis and whisky and applied heat to his extremities. With this treatment he was relieved in a few hours, and in a few days went to his business, which was that of a lumber merchant. My diagnosis was insufficiency of the mitral valve with irritability of the heart.

July 15, 1895, he had a second attack very similar to the first, which was treated in the same way. It occurred about the same time of day. On the evening of July 18, patient had a third attack, similar but more alarming than either of the other two. In this attack circumscribed congestion and pneumonia developed in the region of the heart, due probably to

insufficiency of the mitral valve, which caused regurgitation of the blood, driving it back into the pulmonary veins, thereby causing acute circumscribed pneumonia. From this attack patient remained in bed and at his home till Aug. 29, 1895, when he went to his business.

Sept. 4, 1895, at 11 P.M., he had a fourth attack, in which the symptoms were more alarming than those of the previous three. This attack was also followed by acute circumscribed pneumonia. He remained in bed three weeks and did not leave his home till Dec. 4, 1895. He then went to his business. These last two attacks I treated as the first. During the intermissions I put him on iodid of potash 0.65 gram, bichlorid of mercury 0.0016 gram, tincture of digitalis 0.62 c.c. and nitrate of strychnia 0.0016 gram three times a day. He remained at his business till January, 1896. Afterward he was sent to a sanitarium at Cambridgeborough, Pa., where he died May 25, 1896, with what was claimed to be acute Bright's disease. Frequent examinations of the urine, during my attendance, showed that his kidneys were perfectly healthy.

Mrs. T. M., aged 53 years, died March 16, 1897. She was the mother of three children, all living, and was of a scrofulous diathesis. She had had an intermittent pulse thirty years and was short of breath on ascending stairs. For the last year her heart had a strong beat in systole becoming weaker in diastole, still weaker in the next systole and weaker still in diastole, then an intermission. The heart would then repeat as before. The beats were quicker than normal. This condition I attributed to valvular disease accompanied by hypertrophy and irritability of the heart. In December, 1895, she had edema of the legs, but this subsided under treatment in about two weeks and she was reasonably comfortable till Oct. 10, 1896, when I examined her urine and found albumin, specific gravity 1040; there was edema of the legs. October 21, her urine showed only a trace of albumin; legs still edematous. November 8, edema extended to the thighs and body, right arm and right breast, together with ascites. About this time pneumonia developed. November 12, there was 8 per cent. of albumin in the urine. The rusty coated sputa subsided and cough diminished. November 16 she was still expectorating a muco-purulent matter, breathing quick and labored. December 13, I punctured the abdomen with a trocar. Very little fluid ran through the canula. On removing the canula, the abdominal fluid dribbled for about three weeks through the opening made by the trocar. For three weeks previous to tapping the patient was unable to lie down. Afterward for a time she was able to take the recumbent position; the albumin disappeared, the cough ceased and the urine cleared and was normal in quantity. This condition continued till the puncture healed. Then the ascites increased so that the patient was unable to lie down after Christmas, 1896. Jan. 18, 1897, I again performed abdominal paracentesis to relieve dyspnea but, as before, the fluid only dribbled for a time through the puncture. During this time the ascites and edema diminished considerably. Since October, 1896, fluid oozed through the skin of her legs in abundance and caused gangrenous ulcers. She died of uremic poisoning and was affected with this a week before her death. The treatment consisted of tonics, diuretics and cathartics. After the first tapping there was no albumin found in the urine.

The general symptoms of these two cases ran in about the same line, ending in death in about the same way, pressure from ascites interfering with the function of some organ. It also serves to develop what is too often true, that the physician called late in the course of the disease, is apt to overlook the primary disease and make his diagnosis according to the most prominent secondary condition that exists at the time.

The history of the first case would exclude Bright's disease as the primary disease and cause of death. A patient with such a history could have had Bright's disease of the kidneys only as a secondary condition. The second case could have been with much assumption of truth diagnosed either albuminuria or acute pneumonia, at the time either of them was most prominent.

THE NEW ELECTRO-MERCURIC TREATMENT OF CANCER.

Read before the American Electro-Therapeutic Association, at Harrisburg, Pa., Sept. 22, 1897.

BY G. BETTON MASSEY, M.D.
PHILADELPHIA, PA.

In a limited series of cases in which accessible and supposedly still local carcinomas and sarcomas have been more or less perfectly subjected to this method I have had two well-proven cures and four or five cases now progressing toward the same happy result. Some of these cases date back to 1893, when I accidentally noticed the good effect of a mercurial coating on a zinc anode in contact with a cancerous ulceration, and began the treatment with dosages of 100 and 150 milliamperes with combined mercury and cocain cataphoresis, but my own estimate of the value of the method received an immense impetus during the past spring on the occasion of the first employment under general anesthesia of 500 and 1,000 milliamperes to a carcinoma of the breast. The usual effect of a local necrosis about the zinc-mercury electrodes occurred and the tumor shrank perceptibly at once from a cataphoric dispersion of its liquid contents; but a most important fact was noticed the following day when the dry dressing was removed; it was then seen that the puffed, purplish, malignant, appearances had disappeared beyond the area of necrosis, the skin and subcutaneous tissue now lying flat and pink to a considerable distance from the electrode. This proved that a substance, or influence, had passed from this amalgamated electrode through the malignant tissue, that had a lethal effect on the cancer cells while failing to hurt the normal tissues containing them.

The key to the results in all the cases was contained in this single observation, and I predict that few, if any, discoveries in medicine have surpassed this in practical importance, for it not only gives conclusive proof of the correctness of present pathologic views, which regard cancer cells as primarily local and possessed of a low organization and vitality, whatever their true nature may be, but, more important still, indicates a remedy for accessible cases of this increasing scourge of mankind.

The special value of a method that enables us to project a nascent oxychlorid of the most powerful antiseptic into the tissues at will, probably into the interior of the very cells themselves, is theoretically evident. It also appears that a greater portion of the mercury-laden current will traverse the cancer prolongations than the surrounding tissues on account of the lessened resistance due to increased vascularity of the morbid tissue. Theoretic considerations

thus unite with observed facts in indicating that this method is one of extreme value in local malignant growths.

It would be interesting to ascertain the amount of mercury, by weight, that can be carried into a growth per milli-coulomb, also the distance which it will traverse per volt-hour. I find a table in Lodge's work which gives the cataphoric speed of seven substances, of which hydrogen is the most rapid, traversing an electrolyte at the rate of 1.08 centimeters per hour per volt. Lithium is the slowest, at 0.094 centimeter per volt-hour. Taking 0.1 centimeter per volt-hour as a probable figure for mercury, it would mean that 100 volts of current would cause mercury to travel 10 centimeters per hour, or only 1.4 centimeters in ten minutes. These facts have much practical importance, indicating that we must have a sufficient duration of the current to secure proper penetration, and that amperage alone, while governing the amount and density of the penetration, is incapable of increasing its extent without adding a time element. Since seeing this table of Dr. Lodge I have been convinced that some of my applications have had an insufficient duration. The exact cataphoric speed of mercury should be determined.

The practical details of this method, as applied by me to the cure of cancer, consists of two selective procedures, the gradual and the rapid, adapted to different cases and conditions of malignancy. The gradual method is simply an intensification of a method used by me daily in the cure of obstinate catarrh of the uterus and similar conditions, in which an amalgamated zinc or gold electrode is applied to the ulcerated surface and as much mercury driven in, by daily applications, as the moderate pain produced will permit. This is adapted to incipient cancers and very bad inoperable cancers in which the rapid method is injudicious.

In the rapid method the patient is thoroughly anesthetized; two or three large indifferent pads are placed under the back and connected with the negative pole of the battery. To the positive pole a multiple-connection cord is attached which is to be connected to one or more lancet electrodes, when the latter have been inserted into the growth. Usually an opening must be made into the tumor for the insertion of the electrodes. After being troubled in several cases with the bleeding which this causes, the only blood-loss of the whole method, I attached a separate steel spear electrode to the negative pole and, with this made an electrolytic opening of the proper size. This requires reversing the current for the first insertion, but after the first electrode is in place the current may be turned off at the controller, reversed, and turned on in the proper direction, with one electrode acting. The spear may now be attached afresh to the same binding post that is connected to the pads, and used to make additional openings, into which fresh zinc electrodes are placed and put in connection with the multiple-connection positive cord. No blood will be lost or obscure the field of action.

Five hundred milliamperes is the greatest current so far used in this monopolar method, as this amount has depressed the breathing by a tetanic contraction of the diaphragm. This was doubtless due to the fact that one of my dispersing pads was on the abdomen and the other on the back. In the next case I shall place both pads on the back.

In two cases I have hurried the local dissemination of the mercury, by placing a cotton-covered disc, saturated with liquor potassii arsenitis on the center of the tumor, as the negative pole, cutting out the dispersing pads. The application now being bipolar and mainly local, the current was increased to 1,000 milliamperes. It will be noted that this application produced a valuable cataphoric action at each pole, mercury going in at the anode and arsenic at the cathode.

After sufficient local effect has been produced the application is terminated and the patient put to bed. At the end of twenty-four hours the slough that has been produced, will be found to be surrounded by an area in which the cancerous manifestations have been quelled entirely, or partially, in accordance with the thoroughness of the application, without the sustaining tissues being necrosed. The slough, itself, is largely aseptic and will come away in about twelve days, permitting us to determine whether a repetition of the process is necessary. The cavity left fills up readily by granulation.

NOTE.—At date of publication the two cured cases mentioned continue well. Three additional cases of completely successful removal of cancerous tumors by the method have since been added to the list.

THE NEED OF DENTAL INSTRUCTION IN MEDICAL SCHOOLS.

Presented to the Section on Stomatology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY EDWARD BRANIGAN, D.D.S.
BOSTON, MASS.

There is a great need of dental instruction in medical schools. Physicians should know more about the teeth than they now do, and when medical students are given a better knowledge of the teeth and of the many disturbances they cause, then will medical science do more for humanity than it is now doing. More than a dozen years spent in looking into the mouths of my neighbors, at the rate of hundreds of mouths a week, has revealed to my observation so many instances of improper treatment of diseases caused by the teeth, that I have long felt it my duty to protest, and I now take advantage of the opportunity given me to put my protest into the relation of experiences that have come to me so many times that I put them forth as cold facts. I shall confine myself to the narration of a few of the more common instances of mismanaged treatment of diseases caused by the teeth. The evils I speak of are common.

Abscesses caused by pulpless teeth are still poulticed and opened on the face by medical men. I have seen many hundreds of these, for this treatment never effects a cure, and in the course of time it dawns upon the patient, if not upon the doctor, that dental assistance is needed. How much better it would have been for the patient to have been sent to the dentist at first and so avoided days and weeks of misery and the necessity of carrying a hideous scar for life. People are still being stabbed on the face and neck because a third molar sometimes causes trouble in trying to get up into the mouth where it belongs. The medical treatment for these simple abscesses is sometimes varied a little. The sufferer may be kept in bed for a time, with temperature and pulse watched, and medicine changed at intervals, according to the symptoms. This sometimes happens when the old tooth-root, at the bottom of the trouble, is so loose that the owner

could pull it out with two fingers. Pus from an abscessed tooth is frequently discharged into the antrum. The extraction of the tooth, followed by proper treatment, would rob the medical profession of many patients who are supposed to suffer from, and are treated for, catarrh. Serious throat diseases are frequently caused by pulpless teeth and sometimes by unerupted or retained teeth. All throat specialists are not aware of this fact.

A more intimate knowledge of the mouth and teeth would help other specialists, aurists, for instance. Severe and painful inflammations of the ear, caused by teeth, are common. The removing of fillings from pulpless teeth has made many sufferers from improper aural treatment happy. Unerupted wisdom and occasionally unerupted supernumerary teeth are the cause of many obscure ear troubles. Next to the dentist, no one needs dental knowledge more than the aurist. Oculists are now tracing a variety of diseases of the eye back to the teeth, but they have not yet found out all the mean things a diseased tooth can do. Many sufferers from irritation of the eye, backed up by an inflamed tooth, do not get to the oculist, and if the general practitioner knew more about the teeth as a cause of disease, he would not in so many of these cases prescribe an eye-wash, or glasses, or a tonic; he would send the patient to a dentist.

A tumor of the nose may be caused by a dead tooth-pulp. Treatment of the tumor without a knowledge of the cause is not calculated to make the owner of the nose happy. The victims of so-called neuralgia, who after weeks and months and even years of anti-neuralgic drugging, die or find relief at the hands of someone who knows something about teeth, are countless. Thousands of people are today being drugged for neuralgia who are really suffering from some form of dental irritation. A pulp-stone no larger than a pin-head can bring about so much pain and loss of sleep, appetite and health that nervous prostration may be, and often is, the end of an affair that a pair of forceps would have ended in a moment.

Bicycle riding has given relief to many sufferers from dyspepsia, but many more dyspeptics would get better if their medical advisers insisted upon their having all their lame and tender teeth cared for. Among the hundred or two of mouths opened every morning for my inspection, I never fail to find a number showing evidence of being used on one side only, and in many of the mouths the front teeth are the only ones that do any work.

Physicians should also take into consideration the constant presence of pus in the mouths of many of their patients. They do not all do this. I find pus in physician's mouths about as often as I find it in the mouths of other classes of patients.

The authorities in charge of the management of hospitals should know more of dentistry. If they did, the nurses and other hospital attendants would know how to cleanse a patient's mouth, and the hospital surgeon would know how to look into a patient's mouth intelligently. The removal of half or a whole jaw for necrosis, would not take place when the extraction of a few roots and the use of an antiseptic mouth-wash would effect a cure. When hospital surgeons know more about the mouth and jaws we shall not be obliged to meet people who have been dismissed from hospitals after some weeks of treatment for broken jaw, with the fracture ununited or with the union in so erratic a form that the sufferer can not close his jaws. When some one about the hospital is able to examine a mouth we shall not be called on to help the man who takes his broken jaw away from the hospital after having been assured that he will be all right in a few days if he puts a poultice on his bruised face and takes a few pills. It is a fact that some surgeons can not locate a fracture of the jaw, and it is also a fact that when located, fractured jaws are sometimes treated by being bound together with a four-tailed bandage, and then, as a happy afterthought, a couple of front teeth are pulled out to make a hole through which to tuck the patient's nourishment.

After dental instruction is given to medical students, the army and the navy will get a little much needed dental service. They get very little now, although hospital stewards are supposed to be able to pull teeth.

The medical directors of public institutions will find a vast amount of good work ready for them when they realize the importance of having dental service given to those in their charge. A few years ago I discovered that not one of the 500 children in one of the public institutions in my city had a tooth-brush. The children of that institution are now supplied with tooth-brushes, but I fear there are many similar institutions in the world where the tooth-brush is never seen and the dentist never heard of. I am sure that this evil will be corrected very soon after dental instruction is given to the future medical directors of public institutions for the care of the poor.

PATHOLOGIC CONDITIONS OF THE PHARYNX AND CONTIGUOUS STRUCTURES DURING EARLY CHILDHOOD, PRIME FACTORS IN THE ETIOLOGY OF MALFORMED MAXILLÆ AND IRREGULAR TEETH, ETC.

Presented to the Section on Stomatology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY WILLIAM A. MILLS, D.D.S.

BALTIMORE, MD.

The physiologic functions of the nasal cavities are as follows: "They elevate the temperature of the inhaled air, give it moisture, and purify it by arresting all particles of dust and other substances which it may contain;" they act as resonance cavities for the voice and are also the seat of the sense of smell.

A professional experience of more than twenty-five years, has taught me that any inflammatory lesions—found in children between the ages of 4 and 12 years—which obstruct these natural conditions, are in the majority of cases, the chief agents in the causation of malformed jaws, and the consequent abnormal alignment of the teeth. (To the same cause can be attributed beaked or hooked noses, so often found in connection with these deformities.) I have reached this conclusion after many years of ceaseless endeavor to trace out cause and effect. Others may theorize differently, but theory alone will not stand, unless proven clinically correct.

I cite the following case in my practice:

A male child over 7 years old was brought to have a tooth filled, which was supposed to cause pain in the right ear and the right angle of the inferior maxilla.

The patient presented the following clinical conditions: Almost complete obstruction of the nasal cavities; face pale, anemic and haggard; features contracted at the angles of the jaws and beneath the malar processes, giving the characteristics of the mouth-breather or "dog-face," as Dr. Cathell terms them. I

found a small cavity in a molar tooth, which in no way could have caused the pain. This was filled but gave no relief. I depressed the tongue and examined the tonsils. These I found so greatly enlarged that they almost met at the median line. I was informed that deglutition was both difficult and painful. When the tongue was forced well down with a tongue depressor, quite a large quantity of yellow pus sprang from an unseen source in the right tonsil. On the removal of the depressor, the patient exclaimed, My pain has gone!

On examining the superior maxilla, I noticed a very perceptible contraction on both sides, anterior to the first permanent molar teeth, with a decided inclination of the roof of the mouth to become elevated.

I informed the aunt of the state of affairs, and that unless heroic measures were quickly taken for the child's relief, by a rhinologist, very serious consequences would be sure to follow.

Six months later the patient returned, and I was informed that notice had been taken of previous instructions and a specialist consulted the same day. He had removed some adenoid growths, and was still reducing the tonsils with the galvano-cautery. He was now a bright and rosy-faced boy, with normal respiration, and we found no signs of the former contraction of the jaws, or rising of the arch, all of their outlines being perfectly normal.

This particular case demonstrated that either the adenoid vegetations, or the enlarged and diseased tonsils, or both, were the prime factors in the causation, not only of the malformations of the maxillæ, but also the oral respiration.

If a correct diagnosis had not been made, and only palliative treatment been given, there is no doubt that a case of V- or saddle-shaped arch would have been developed, with irregular teeth as concomitants; especially as the patient's parents and grandparents are full-blooded Germans, and have large jaws and teeth.

I have often found similar conditions in young patients, whose parents thought so little of the matter that they deemed no treatment necessary, as the children never complained of pain; while others "made their own diagnosis, and treated for conditions which did not exist, being ignorant of all possible results." Thus, from time to time, the lesions were permitted to progress, until more acute symptoms developed, when the family physician was called; and as is often the case in such diseases, he failed to make a correct diagnosis, or give the proper treatment, and thinking the disturbance of no great importance only prescribed some simple wash or nasal douche, thus allowing inflammatory conditions, which could have been cured, to develop into more chronic forms with all their evil consequences.

The starting point in the majority of these cases, has its origin in some slight irritation of the mucous membranes of the throat, especially the tonsils. "It seems remarkable," says an authority, "that the fauces at this time of life, should be the seat of so many inflammatory processes."

To show with what indifference some practitioners treat such cases, I cite the following: A reputable physician, whose daughter, aged 14 years, has nasal catarrh, V-shaped arch, irregular teeth and an almost complete obstruction of the nasal cavities, when told that he should do something for her relief replied, "She will come around all right when she gets older;" and this seems to be the opinion with many general practitioners.

In conclusion, I would urge upon both medical and dental practitioners the importance of being ever on the alert to discover the first signs of any inflammatory manifestation in the throat or nasal cavities of children, as so many inflammatory disturbances are prone to develop in the respiratory passages, without in themselves showing any very acute symptoms, and if permitted to continue without proper treatment, cause disease and malformations which in some cases defy all remedial agencies.

When a patient has a slight occasional cough or clearing of the throat, any peculiarity of intonation, huskiness of voice or nasal twang, an examination should be made to discover the cause, and when located, treatment given at once; and if oral respiration is fully established, some reputable specialist should be recommended, as he is better qualified to make a correct differential diagnosis, and prescribe the best remedies. I believe that if this is done, fewer cases of malformed maxillæ and irregular teeth will be found in the future than at present.

The following are a few replies to personal letters sent, asking for opinions as to the etiology of malformed maxillæ and irregular teeth.

Dr. John Nolan Mackensie, Johns Hopkins Hospital, says: "Rhinologists generally hold that the deformities in question are sometimes produced by nasal and post-nasal obstructions (deflection of the septum and adenoid growths being two conspicuous examples). Indeed, it has been shown experimentally that asymmetric conditions of the corresponding side of the cranium may be produced in young guinea-pigs by artificially occluding the nostril. Malnutrition must of course be at the bottom of the matter; due probably to defective blood supply, both in quantity and quality."

Dr. M. H. Cryer says: "It is my opinion, that an inflammation of the tonsil and surrounding tissue will cause tension of the palato-pharyngeal and palato-glossus muscles; if this be so, they would naturally pull the lateral portions of the arch downward and inward; especially is this the case with children when their bones are soft and yielding."

Dr. Harrison Allen says: "Probably the most important factor present is oral respiration. Disuse of important functions (instanced here by the nasal passages) invariably excite disturbance. No 'starvation' of the tissue is present in these cases as I understand them, nor is there disease, as the phrase is usually employed. I no not think undue pressure of the muscles against the jaws exists, nor are the jaws themselves weakened, except that they may be weakened by having their curves of normal action interfered with."

302 Dolphin Street.

HOLOCAIN HYDROCHLORID; SOME NOTES ON ITS USE IN OPHTHALMIC SURGERY.

BY J. WHITEFIELD SMITH, M.D.

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BLOOMINGTON, ILL.

Up to the present time but little experiment has been made in the use of holocain in ophthalmic surgery. But from the clinical notes so far at hand, it would appear that it has some advantages and may prove to be a very useful drug in ophthalmic practice.

"Holocain is a synthetic substance having the composition of para-di-ethoxy-diphenyl-ethenyl-amidin, and the hydrochlorid has been used in a 1 per cent. solution as an anesthetic in ophthalmic practice, but on account of toxic properties is not recommended for hypodermic injection. Anesthesia is prompt and lasting, and is not accompanied by mydriasis or dis-

turbances of the accommodation" (*British Medical Journal*).

Dr. Robert Brudenell Carter of London contributed an article to the *Lancet* of May 29, in which he called attention to a paper read before the Belgian Academy of Medicine March 27, 1897, by Dr. Deneffe of Ghent, whose observations in the use of holocain were as follows: He said that "by applying a drop of a 1 per cent. solution to the eye three times, at intervals of fifteen seconds, complete anesthesia would be established in three minutes without pain, without change in the diameter of the superficial vessels, without dilatation of the pupil and without paralysis of the accommodation."

Dr. Carter from his own observation says: "I received a supply of holocain last week and used a 1 per cent. solution in the manner described by Dr. Deneffe, having first applied some to my own eye and found that it gave no pain. Four applications were made in the course of a minute and at the end of four minutes from the first of them I performed cataract extraction with iridectomy. The patient was unconscious of the first incision and was barely conscious of the iridectomy, not flinching or moving the eye. The section healed perfectly by first intention. A day or two later I used the same solution before slitting up the lachrymal canaliculus and rendered the operation absolutely painless. As asserted by Dr. Deneffe, there was no action upon either the conjunctival blood vessels, the pupil or the accommodation, and I can not but think that the new agent will be found highly useful in ophthalmic practice. The promptitude of its action is alone of no inconsiderable advantage."

Löwenstamm (*Therap. Monats.*, May, 1897) relates some further investigations into the use of holocain in 1 per cent. watery solutions in ophthalmic practice. It can not be employed subcutaneously, because its toxic action is considerably greater than cocain, and even in ophthalmic work it should be used in minimum doses. By applying a few drops anesthesia is produced in the eye in about ten minutes. The author has employed holocain in sixteen cases, of which seven were normal eyes, five were examples of foreign bodies, and four were operation cases. In one set of three cases, four drops were put into the eye and repeated in five minutes, when the anesthesia of the cornea and conjunctiva lasted on an average nineteen minutes. In six other cases the same quantity was used on three occasions at intervals of five minutes, and the anesthesia lasted on an average thirty minutes. A slight touch was felt before the lid reflex returned. In three cases four drops were applied on three occasions at intervals of two minutes, and here the anesthesia lasted on an average twenty-six minutes. This method has the advantage of requiring only a short time before the operation can be commenced. Often an increase in the anesthesia of the conjunctiva was noted after the second and third application, and where this did not occur a passing sensation of burning was experienced. The removal of the foreign body was accomplished in one eye eight minutes and in the other fifteen minutes after the second application, without the patient feeling anything. In two operations for squint lasting fifteen to twenty minutes two applications sufficed. As regards gradual action no difference was noted from cocain, but the tension of the bulb was not lessened, the cornea retained its luster and moistness and the pupil was not dilated. No toxic effect was noticed and no change in the pulse or urine. Heinz allowed a 5 per cent. solution, and also the dry powder to be applied to his own eye, and no intoxication symptoms occurred. Perhaps holocain is less readily absorbed from the conjunctiva than cocain. Thus holocain is a prompt, pronounced and long-lasting anesthetic, with no unpleasant results. It should find a permanent place in ophthalmic practice. Boiling the solution is not requisite, as holocain possesses powerful disinfectant properties.

The only time I have seen it used was at the Royal London Ophthalmic Hospital (Moorfields) on June 25, 1897. The preparation used was a 1 per cent. aqueous solution. The case in which it was used was that of a senile cataract in a man about 60 years of age. Four or five drops were instilled into the eye at intervals of three or four minutes for a period of twenty minutes, then the patient was placed on the operating table and the eye carefully douched with a boracic acid solution. The anesthesia of the cornea and conjunctiva seemed perfect. Iridectomy was performed, apparently without pain. The only noticeable feature was a more profuse hemorrhage from the conjunctival vessels than is usually observed when we employ cocain. The wound healed promptly without subsequent pain or discomfort to the patient.

SOCIETY PROCEEDINGS.

Western Ophthalmological, Otological, Laryngological and Rhinological Association.

Abstract of the Proceedings of the Third Annual Meeting held in Chicago, April 7 and 8, 1898.

The Association met in the rooms of the Chicago Medical Society, and was called to order by the Chairman of the Committee of Arrangements, Dr. J. E. COLBURN of Chicago, who introduced Dr. F. HENROTIN, President of the Chicago Medical Society, who welcomed the Association on behalf of that Society and the local profession. He spoke of the necessity of modern specialists, and said that all recognized their value. He believes in societies and organizations. While there might be injustice done here and there, such societies would live and thrive and multiply.

Dr. A. ALT of St. Louis, responded to the Address of Welcome, and thanked Dr. Henrotin, in behalf of the Association for the very kind words with which he had welcomed the members on the occasion of their third yearly meeting.

The President of the Association, Dr. B. E. FRYER of Kansas City, was then presented and delivered a brief address in which he dwelt upon general matters pertaining to the work of the Association.

Dr. H. KNAPP of New York, delivered an address on

THE RADICAL TYMPANO MASTOID OPERATIONS.

Among the surgical procedures cultivated so successfully by otologists during the last decades, the so-called radical mastoid operation is the most important, but also the most difficult. The pioneer work of Troetsch, Schwartze, and others in this field was well known and fully appreciated, when Kuester in 1889 gave a new impetus to the further development of this branch of surgery by censuring aurists for operating too much in the dark. Zaufal and Stacke were the first prominently to take the hint in developing methods for making more extensive and thorough operations which have received the names of radical operations, comprising the removal in cases of chronic purulent otitis media, of everything diseased in the mastoid, attic, atrium, external meatus, and adjacent pneumatic spaces in one large cavity. Dr. Knapp described the performance of the operation with blackboard illustrations and presented numerous anatomic, both dry and wet, specimens. The methods of Zaufal and Stacke differed somewhat at first, but are at present virtually identical. The difference is that Zaufal begins the operation from the mastoid, and Stacke from the attic. The speaker dwelt on the precautions to be taken to avoid during the operation injury to the facial nerve and the horizontal semicircular, particularly by chiseling the mastoid

by broad vertical slices, layer by layer, finding first the antrum by measuring on a straight probe, first introduced through the posterior part of the auditory canal to the labyrinth wall of the tympanum, then down to the depth of the artificial canal, chiseling into the mastoid the length of both, and remembering that the aditus ad antrum is about at the level of the medial wall of the tympanum. To secure the position of the aditus the posterior wall of the ear canal should be sounded by a bent probe, either from the attic (Stacke) or from the mastoid (Zaufal), or from both, bearing in mind that the small canal mostly is not directed horizontally, but more or less ascending from the attic up and back. If probes are introduced both ways and left in position during the operation, we can with patience, cleanse the wound from blood, by good light recognize the parts clearly, and avoid injuring them both during the chiseling of the posterior wall of the osseous ear canal, and the lateral wall of the attic, a very important step in the radical operation, as also during the cleansing of the cavities with a sharp spoon.

The speaker described how to avoid injuring the dura mater in extending the operation into the posterior and middle fossæ of the skull. The description and rules were illustrated by brief records of cases. The first was a smooth and temporarily successful operation, but death under fulminant symptoms occurred months later, apparently by the breaking of a cerebral abscess into the ventricles. In the second case, the facial nerve had been injured during the scraping; the partial facial paralysis disappeared completely in three months and the patient was doing well. The third case was a patient, 50 years of age, who had been operated on (the tympanum) by Professor Bruns of Tübingen, when she was 5 years old. Dr. Knapp removed the carious malleus five years ago; the otorrhea and very severe attacks of headaches and dizziness of late compelled her to seek the doctor. A radical operation cured the otorrhea and head symptoms. The patient said, "I feel like another person." The fourth case was that of a scrofulous child 2 years of age, operated on eighteen months ago. A most extensive operation was done, removing the carious and necrosed bone deep into the petrous bone. Recovery followed, leaving a deep, perfectly epidermized cavity behind the ear.

On motion of Dr. Alt a vote of thanks was extended to Dr. Knapp for his interesting address.

Dr. Hugh T. Patrick of Chicago, followed with an "Address by Invitation," in which he dwelt upon the kinship of neurology, ophthalmology, otology, laryngology and rhinology.

Dr. Adolph Alt of St. Louis, read a paper entitled

RECENT RESEARCHES INTO THE HISTOPATHOLOGY OF TRACHOMA.

The frequency of this disease as well as its important position among the affections of the eye, must needs again arouse the desire to fathom its real cause and perhaps in this way to help in its prevention or cure. The author's researches in this direction date as far back as 1876, when he inoculated rabbits' eyes with trachoma. He was perfectly successful in producing a disease which apparently differed in no way from the real trachoma. However, this disappeared again in the course of from one to two weeks. He had some of the old specimens still and what he had succeeded in producing in the rabbit's conjunctiva differed histologically in no way from the disease in the human conjunctiva. Leber has had the same experience. After a lapse of years the author again took up the study of this subject on quite a considerable amount of material which he had gained by excising trachoma granules and cutting them into sections. His recent researches seem to confirm the previous ones. Notwithstanding the clinical difference between so-called follicular conjunctivitis and trachoma, the bodies which he has found and considers to be parasites in trachoma he has likewise always found in follicular conjunctivitis.

FIVE CASES OF PARINAUD'S CONJUNCTIVITIS.

A paper on this subject was read by Dr. H. Gifford of Omaha, Neb. He said the disease was first described by Parinaud in 1889, and hitherto nine cases of it have been described in France, while in Germany and Austria the same disease has been described by Goldzicher as lymphomatous conjunctivitis. It is characterized by rapid swelling of the lids with more or less mucopurulent discharge, and the development on the folds or tarsi or both of large rounded granulations which not infrequently are fungiform or polypoid in form. Between the granulations small conjunctival ulcers sometimes occur. Soon after, or in very rare cases, before the affection of the lids, the lymphatic glands of the neck and face on the affected side generally become swollen and tender to a very marked degree and suppuration not infrequently occurs. The disease is almost invariably one-sided, is apparently not contagious, and appears to undergo a spontaneous cure in the course of some months when left to itself. Treatment in the worst cases affects the disease very slowly. The cases in which the tarsal surfaces are covered with granulations might be mistaken for very pronounced trachoma, while in those where ulcers of the folds surrounded by granulation tissue occur, the question of tuberculous conjunctivitis might be raised. The cornea is rarely, if ever, affected, and the subjective symptoms are comparatively slight. Parinaud has called the disease infectious conjunctivitis of animal origin, partly because some of the French cases were butchers or farmers, but the evidence on this point is not at all conclusive. Bacteriologic investigations as to its cause have been practically without positive results. Two of Gifford's cases were somewhat typical in so far as that in one of them the swelling of the lymphatic glands was confined to a row behind the sterno-mastoid muscle, while in the other the granulations were hardly as large as usual, the most prominent conjunctival feature being the presence of numerous ulcers mostly on the folds, but some of them on the tarsi and bulbar conjunctiva.

Dr. James Moores Ball of St. Louis, reported a case of "Quinin Blindness."

Dr. B. E. Fryer of Kansas City, read a paper on

THE ANTISEPTIC PREPARATION OF THE CONJUNCTIVA FOR CUTTING OPERATIONS OF THE EYEBALL.

He said the terms antisepsis and asepsis were rather carelessly interchanged by many practitioners, and this ought not to be. He insisted that in many instances surgeons did not, nor could not make a surface aseptic if they strictly included in the word asepsis not only the absence of septic material, but also the absence of the cause of sepsis, namely, pathogenic bacteria. He then showed how and why this was true. In antiseptic work on the conjunctiva only very weak solutions of sublimate or of iodid of mercury could be used. He maintained that a mercuric chlorid solution in the proportion of 1 to 6000 could be instilled in the conjunctival sac every day for weeks without any reaction being produced. The method of preparing the eye for a cutting operation upon it which he employs, is as follows: The face is thoroughly cleansed with soap and water, and then the orbital region is washed carefully with a carbolic acid solution 1 to 50. The eyelids and eyelashes at their roots are especially cleansed. The conjunctival sac is flushed carefully with 1 to 6000 sublimate solution, and a bichlorid gauze pad is put over and retained upon the eyelid, and it should extend over the brow and nose and down upon the temple and cheek. The dressing is changed daily, and daily the eyelids, brows and cheek are washed with carbolic acid solution and the gauze renewed. Latterly, in the beginning of the antiseptic preparation the speaker has instilled protargol solution 1 per cent., say for four or five days, and at the end of that time dropped in the mercuric chlorid solution. He finds in certain cases, especially in those patients who, from having prostatic trouble, and who void more or less pus with the urine, are very liable to infect the eye or have infected it. In such cases the protargol seems to stop the pus flow from the conjunctival sac readily and also removes the conjunctival congestion. These prostatic cases require greater care in preparation for eye operations than is usually given them even by those who believe in correct antisepsis. Many of the cases having pus cocci enter the conjunctiva, which cocci, while they have only an innocent surface lodgment, will there produce purulent destruction of the eye if admitted unrestrained on to the globe. By prolonged preparation and following the method he outlined, he thought oculists could restrain the pathogenic microbes in the conjunctiva as they are restrained in the derma, and sufficiently long to allow of healing before the restraint is removed by the germicide's final removal or elimination. He had microscopically demonstrated streptococci from the conjunctiva of eyes which were to be operated on, and which streptococci were so attenuated in power by the continued antiseptic preparation that no bad result followed the operation.

Of course the condition of the nares must be looked after, and he found that a weak solution of tincture of iodin in albolene, used as a spray, did effective work in attenuating microbes in the nasal cavities.

Dr. T. A. Woodruff read a paper on the

USE OF DR. DE ZENG'S REFRACTOMETER.

He compared the work of this instrument with the results arrived at by skiascopy and the test lenses. In every case the existing error of refraction was determined first with the refractometer and then by skiascopy and the test lenses, using each method independently of the other. All cases were worked out with the aid of either a 1 per cent. solution of atropin or homatropin and cocain discs, the latter being used in the majority of instances. In some cases the amount of ametropia was determined first without the use of a cycloplegic, but where active accommodation was present the results obtained

were unsatisfactory. In about 50 per cent. of the cases he found the three methods agreed accurately, but in the balance, and particularly where an oblique astigmatism was present, it appeared impossible for the patient to decide between several axes. Skiascopy and the test lenses determined this much quicker and more acceptably. Dr. Woodruff drew the following conclusions: 1. That the refractometer is not a time-saver. 2. It is not always accurate in determining the amount and axis of astigmatism. 3. It is liable to produce an over rather than an under correction of astigmatism. 4. In old people, or where a cycloplegic is contraindicated, it will prove of assistance. 5. In myopia and hypermetropia it is most satisfactory in determining the full amount of the error under a cycloplegic. 6. It is expensive.

THE SCIENCE OF OPHTHALMOLOGY.

Dr. DUDLEY S. REYNOLDS of Louisville, Ky., read a paper on this subject. He said that the science of ophthalmology was in great danger of becoming tainted with loose methods of approximation. It was not to be wondered at that disappointment so frequently followed loose methods of analysis as to lead both patient and practitioner astray in searching for causes of pain and aches that refuse to yield to the supposed correction of errors of refraction. The decentered lens and the prism have seized upon the minds of some, whilst others have apparently gone daft in their search for ocular tendons to cut, or advance. An enthusiastic surgeon recently reported his achievements in the looping of ocular tendons with catgut ligatures. Dr. Stevens had created an apparently rational place for partial tenotomy; but it was not an uncommon occurrence to read of a dozen or more tenotomies, or advancements, of the tendon in a single eye. With the tendon looped, muscular co-ordination in the movement of the eyes might, in all probability, be expected to observe not alone the lateral, the vertical and the rotary movements, but like the famous gun with the curved barrel made to shoot bears behind trees, turned in all sorts of irregular directions to compensate for the eccentricities of opposing tendons.

A fine illustration of the results of painstaking practice was presented in the person of Mrs. T., aged 30 years, the wife of a prominent practitioner in Louisville. She came to him on Oct. 19, 1896, with divergent squint, photophobia, indistinct vision for distance, and total inability to read. She had suffered almost continuously with sick headache for a long time, and having been told that the ocular tendons must be advanced, her husband brought her to Dr. Reynolds, with the object of having whatever operation was found necessary done at once. On attempting to suspend the accommodation, he found he had unsteady muscular movement, the rotary muscles being in an almost constant state of activity. Without glasses she saw nothing; with the glasses she had, she saw 6-xxxvi Snellen, with the right eye, and 6-lx with the left eye. On examination of the glasses he found for the right eye she had —0.75 C. axis 170° ⊃ —0.75 S. combined with a prism of 3°, base inward. In the left she had +2.00 C. axis 110° ⊃ —3.50 S.

He prescribed homatropin drops to be instilled twice daily and directed smoked *coquilles* to be worn constantly, and no attempt to be made to see objects, excepting for purposes of going about. She went to the country and remained until April 30, 1897. When she returned the eyes were re-examined under homatropin, the use of which had been kept up during her entire absence. He found +1.00 axis 90° enabled the right eye to see =6-le Snellen; +2.00 C. axis 90° enabled the left eye to see =6-vi Snellen. These glasses were prescribed and she has worn them constantly ever since. She is fond of reading and having no children, has spent the past year in almost constant reading, with not more than two attacks of headache during the entire year, both of these clearly due to indigestion. The glasses she had formerly worn were chosen after a most painstaking and thorough analysis with the Javal-Schiotz ophthalmometer, the ophthalmoscope, and the Zeng refractometer, in the hands of an experienced practitioner.

The great point to be considered is that sufficient care should be taken to establish complete suspension of accommodation, and no final attempt to determine the state of refraction should be made for persons whose general health is such as to disqualify them from engaging in the normal use of the eyes. Proper discrimination in these matters, and a judicious course of constitutional treatment necessary to restore the patient's general health, are too often overlooked or neglected.

EXTRACTION OF IMMATURE SENILE CATARACT,

was the title of a paper by Dr. C. BARCK of St. Louis.

The current view of the necessity to wait for the so-called maturity of senile cataract needs to be modified. The lens after the age of 55 to 60 years is coherent enough, no matter how small the opacity, to admit of a complete and easy delivery, if the corneal and capsular sections are large enough. This opinion was first promulgated by Hirschberg of Berlin, in 1892, but bitterly opposed. The experience of the author, based upon dissections and operations, coincide with the teachings of Hirschberg. He reported ten cases of immature cataract in different stages, in each of which the operation was just as easy and complete as in mature ones. The conclusions of the paper are: 1. A senile lens, however small the opacity may be, is coherent enough to admit an easy extraction *in toto* by the proper method. 2. To wait for the so-called maturity is unnecessary. The operation can be performed as soon as the sight is impaired to such a degree that the vocation or comfort of the patient is interfered with. 3. All operative procedures for artificial ripening are unnecessary and are contraindicated, exposing the eye to a twofold danger.

Dr. A. E. PRINCE of Springfield, Ill., read a paper entitled "Ectropion of Lower Lid."

Dr. FRANK ALLPORT of Chicago contributed a paper entitled "A New Visual Chart for Schools for the Use of Teachers."

Dr. J. O. STILLSON of Indianapolis, Ind., read a paper entitled "Detachment of the Retina."

Dr. A. C. CORR of Carlinville, Ill., read a paper on

CHOROIDITIS AND CHORORETINITIS IN YOUNG PERSONS.

The essayist said that his own observations in practice had not been such as to enable him to agree with the ordinary teaching of the books and didactic instructions on the subject of choroiditis. From this source almost all cases of choroiditis that could not be unquestionably classed as rheumatic, gouty or traumatic, were at once considered as syphilitic, and this latter is confirmed and a positive diagnosis is made if any improvement or a favorable modification follows the use of mercury and iodid of potassium. It was this "trump" etiologic diagnosis that he wished to inveigh against. He gave a brief history of five cases selected as best illustrating choroiditis with retinal hyperemia as he sees it in private practice in young people, and without any possible syphilitic taint, approximately or remotely, and which he believes originates from excessive functional activity of the eyes.

Dr. L. R. CULBERTSON of Zanesville, Ohio, read a paper on "Rotation of the Axis of Astigmatism During Ophthalmometric Examination," and reported three cases.

Dr. A. R. AMOS of Des Moines, Iowa, read a paper entitled

HEMIANOPSIA, FOLLOWED BY TOTAL LOSS OF VISION IN BOTH EYES, AS A RESULT OF UTERINE HEMORRHAGE FROM FIBROID TUMOR.

The case was that of a woman, aged 50 years, who had always enjoyed good health previous to the onset of a uterine hemorrhage which occurred nearly a year prior to any visual defect. Questioning the patient, and physical examination, revealed nothing of syphilis or of tuberculosis, and no inherited tendency to brain disease. The uterine function had always been satisfactorily performed until a year previously. During the period from the first hemorrhage to the complaint of visual defect her system had sustained frequent losses of blood from the uterus. Examination of central vision showed it to be above $^{20}/_{30}$ in both eyes. The perimeter revealed a full field on the left in both eyes, as well as good color sense, but visual perception from her right field was abolished. The pupil reflex and accommodative power were retained; ophthalmoscopic examination negative; no apparent paralyses of other nerves. The patient was irritable and fretful. The extreme pallor of the patient caused inquiries as to hemorrhage. Suspecting uterine tumor, the patient was at once referred to a surgeon with the assurance that the eye affection resulted from loss of blood. Accordingly, she was operated on by Dr. Etheridge of Chicago, shortly after which vision remained about the same as when the essayist had last seen the patient. Within three days following the operation she was again attacked with dizziness and became totally blind.

In closing, the author called attention to the following points: 1. The two lesions occurring at different periods of time and involving the same portion of each cerebral hemisphere, double homonymous lateral hemiopia. 2. While at first there was loss of central vision as well as peripheral, regeneration of the area connected with the macula lutea of one or both sides had taken place, leaving the other areas still implicated.

Dr. H. V. WÜRDEMANN of Milwaukee contributed a paper entitled "Multiple Angiosarcoma with Metastasis and Infiltration Into the Orbit."

At the evening session, Friday, Dr. ALT showed a specimen of adenoma of the ciliary process under the microscope, and also a slide showing the cells of trachoma.

Dr. CASEY A. WOOD of Chicago reported several interesting cases and exhibited the patients.

Dr. NORVAL H. PIERCE of Chicago reported a case of "Papilloma of the Larynx."

Other interesting cases were reported and the patients exhibited by Drs. W. F. COLEMAN, W. A. FISHER, THOMAS FAITH.

Dr. HOMER M. THOMAS exhibited a nebulizer for use in connection with the treatment of diseases of the respiratory passages.

Dr. C. D. WESCOTT of Chicago reported cases of non-pigmented sarcoma of the choroid; primary carcinoma of the conjunctiva; multiple lymphoid tumors of the orbits and subconjunctival dislocations of the crystalline lens.

Dr. EDWARD PYNCHON read a paper entitled

THE TECHNIQUE OF TYMPANIC INFLATION.

The philosophy of tympanic inflation is to accomplish either one or more of the following objects: To secure ventilation of the tympanum; to remove abnormal secretions or discharges; to restore the normal air pressure in the tympanum; to correct the engorgement of vessels which is due to rarefaction; to promote the absorption of inflammatory products; to push out the abnormally retracted drumhead; or to cause massage of the ossicles.

Middle ear inflation is indicated in chronic conditions of Eustachian tube catarrh; in chronic non-suppurative middle ear troubles; in suppurative conditions of the ear, whether acute or chronic, accompanied by perforation of the membrana tympani; and, when properly controlled, in conditions of acute inflammation of different degrees ranging to otitis media acuta.

In the use of compressed air not enough attention is given to the factor of dosage. Its physical properties may be varied as follows: 1, Variation in pressure; 2, intermitting flow with infrequent or rapid breaks; 3, continuous flow; 4, unmedicated air; 5, medicated vapors or nebulæ; and 6, variations in temperature. With such a variety of physical properties it requires no argument to prove that in application its therapy can be proportionately extended.

In order to secure the required differences in pressure and flow, the writer showed an auxiliary air-tank of about five gallons capacity, which is provided with four valves and a meter, and, in order to suitably medicate the escaping air, the use of an inflator-inhaler and also of a nebulizer are advised. Some new methods of doing Politzerization are suggested in which, in suitable cases, as high as a sixty pound pressure is employed, when a lesser pressure fails to inflate.

The continuous air current, being used only in connection with the auscultation tube, is advised in chronic catarrhal conditions of the Eustachian tube, and in conditions of acute inflammation, and is employed only with the catheter, and with a pressure rarely exceeding twenty pounds. It consists of a flow without breaks for ten or fifteen seconds at a time, and can often be advantageously alternated with Politzerization. For a variety of reasons given, the use of the Politzer air-bag is decried except as a makeshift in bedside practice.

Dr. E. O. SISSON, of Keokuk, Iowa, read a paper on

MASTOIDITIS.

He confined himself to the etiology and pathology of the subject. As regards the etiology, statistics go to show that the most common cause of acute inflammation in this region is an extension of a similar process from the middle ear, the primary lesion being either acute or chronic in character. Primary mastoiditis, although uncommon, is occasionally seen, and may follow an exposure to cold or traumatism, or may be a manifestation of a tubercular or specific diathesis. But the most common cause is chronic suppurative inflammation of the middle ear.

The author drew the following conclusions from observations of the etiology and pathology of the affection: 1. The large percentage of cases of mastoiditis are the direct result of chronic purulent otitis media, but that they are not produced in proportion to the frequency of the latter, and therefore, there must be some existing condition or conditions that exert an influence in this direction. 2. That in the light of anatomic observation the pathologic conditions are not necessarily the same in any two cases, and that such observations tend to more firmly establish the fact that an inflammation of the mastoid process is a condition fraught with great danger to life.

A REVIEW OF THE PATHOLOGIC CONDITIONS AFFECTING THE LINGUAL TONSIL,

was presented by Dr. E. C. ELLETT, of Memphis.

After noting the early history of the study of this tissue, Ellett described this organ as the anterior portion of oropharyngeal lymphoid ring, lying behind the circumvallate papillæ, in the pre-epiglotic space, continued upward laterally to almost merge into the faucial tonsils. It is divided into two lobes by the median glosso-epiglotic ligament, and is composed of separate lymph follicles. Its function is, according to Somers, to prevent lodgment of food, to moisten food with its mucous glands, and to assist, by moisture, the gustatory function of the back of the tongue. Derangements of this organ are common, but frequently overlooked. The author considered: Acute inflammation, and abscess; chronic inflammation, including hypertrophy and varix; specific inflammations, and new growths.

Acute inflammation presents much the same symptoms as other acute faucial inflammations, with the addition of frequent edema of the glottis and epiglottis, and severe cough. The treatment consists in demulcents and astringents, with poultices, and internally salol, preceded by a purgative.

Chronic inflammation manifests itself as hypertrophy, often accompanied by varix of the lateral lingual veins. The mirror is necessary to make the diagnosis, though rarely the glands can be seen, when enlarged, by direct inspection. The symptoms to which this condition gives rise are a sensation of a foreign body in the throat, a feeling of constriction at the upper border of the thyroid cartilage, reflex cough, a constant desire to clear the throat, quick laryngeal fatigue and hemorrhage. The condition is especially prone to attack women, and is commonly seen in persons from 20 to 30 years of age. In addition to the correction of any dyscrasia, the treatment consists in removal of the mass by cutting, caustics, or by application of iodin. Special tonsillotomes have been devised for the purpose, though the author removed the glands in one case with a straight instrument. The snare may be used, but the galvanocautery is probably the best instrument.

Of the specific inflammations, tuberculosis has not been noted, while syphilis is not unusual, especially in the secondary stage, with faucial and pharyngeal implications.

New growths are rare. Cysts, fibrosarcoma and angioma have been seen.

Dr. JOSEPH A. MULLEN of Houston, Texas, contributed a paper on

THE USE OF SUPRARENAL CAPSULE EXTRACT IN MINOR EYE SURGERY.

The objects to be attained in using suprarenal capsule extract are to prevent pain and hemorrhage in minor operations on the eye and its appendages. Its effects are the result of its physiologic action upon the small arterioles, a vasoconstricting action, thereby retaining the cocain solution within the tissue. The latter solution precedes the use of the extract. Its use seems to furnish primary healing of the tissues and also to modify post-operative swelling. The intraocular tunics are reduced to a state of ischemia by its contractile power, but accommodation and the pupils remain unaffected. The solution is made by dissolving five grains in ℥j of cold saturated boric acid. It keeps very poorly and should be prepared fresh for each operation. The solution is not at all irritating but rather imparts a cooling sensation to the conjunctival membrane. It is always used five to ten minutes after a 5 per cent. solution of cocain has been instilled. The author has used the extract in removing pterygium adhesions of lids to eyeball; slitting canaliculus and cutting structures of nasal duct, etc.

THE SUBMERGED TONSIL.

Dr. EDWIN PYNCHON of Chicago, read a paper on this subject, in which he called attention to the frequently met-with condition of faucial fulness wherein, when the patient is caused to gag, the wholly or partially concealed tonsil is thereby protruded from between the pillars to which it is generally attached. Follicles, from which exude cheesy masses which contain pyogenic germs, pus cells and other deleterious matter, the continuous swallowing of which tends to impair the health, are thus exposed. Associated with this condition of the tonsils will be found postnasal catarrh, chronic pharyngitis, and at time stomachal or ear trouble, as well as a susceptibility to hoarseness and in some cases to acute attacks of tonsillitis. The submersion is partially due to tonsil hypertrophy and in part to pillar hypertrophy.

In the treatment of this condition thorough ablation is recommended by a process described as "electrocautery dissection," to which the writer called the attention of the profession by a paper in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Nov. 22, 1890, but since which time the operation has been somewhat modified by dividing the attack upon each tonsil in two steps, which are taken ten days or two weeks apart. In this way, as compared with the former method of removing the entire tonsil at one operation, the annoyance of the operation and the danger of hemorrhage have both been materially reduced. The various steps of the operation and after-treatment were fully described and the instruments employed

shown. This operation, while originally designed for adults only, is now employed with children of 7 or 8 years of age, by increasing the number of steps and doing less at each sitting, though the attacks are made more frequently.

The results obtained by this method were reported as being highly satisfactory in all ways and a permanent cure follows of those symptoms depending upon the condition of tonsil being considered, and also in case of vocalists an improvement of the singing voice. A strong argument was made in favor of the most radical treatment, as when the tonsils are diseased, as they most assuredly are in the condition described, then their functional capacity is irrevocably destroyed and, therefore, in accordance with the principles of latter-day surgery the only possible indication must be for total ablation.

(To be continued.)

SELECTIONS.

The Forcible Correction of the Deformity in Pott's Disease.—The forcible rectification of the deformity of the spine in Pott's disease is a subject which in France and Germany is awakening the widest interest. It has hardly found its way into American or English literature yet to any extent (JOURNAL xxix, 745; xxx, 709) partly because it is all so recent and partly because each one hesitates to approach the subject in a critical way on the facts so far presented. The method is essentially one which requires the lapse of a considerable amount of time for the estimation of its real value. The method proposed is this: the patient is anesthetized, and lying on his face is forcibly pulled upon by one assistant on each arm and leg while the surgeon leaning over him presses down upon the deformity until it yields or he sees fit to desist. The patient is then laid on his back on a padded board or enveloped in plaster from his head to his pelvis, for some months. It is claimed by some writers that permanent improvement and almost cure of the deformity may be obtained in this way. We are taught, and analogy would lead us to believe, that traumatism to bones or joints affected by tuberculous disease renders the tissues more vulnerable to the inroads of the bacillus and the general system more likely to be affected by generalization of the tuberculosis. The forcible tearing of tuberculous bone tissue has been again and again demonstrated to be risky and attended often by meningitis or general tuberculosis. For example, in twenty-seven cases of the forcible rectification of the deformity in hip disease recently reported by Raymond Sainton, five developed fatal meningitis within two or three months of operation. Objections on practical and theoretic grounds instantly occur: 1. Pott's disease is a tuberculosis of bone of the bodies of the vertebræ, and the deformity is secondary and is an incident. It has been regarded as in a measure conservative and as nature's preliminary to arresting the disease. The essential is vertebral tuberculosis, not deformity of the spine. Were the treatment proposed the eradication of the disease, it would place it on a different plane; but the measure deals only with a symptom and a result which is of itself distressing, and sometimes disabling but which is on the whole fairly well controlled by early and efficient treatment. Other things being equal it is, of course, most desirable to improve or obliterate the deformity; but the essential of any rational treatment is first to cure the disease. 2. The question of the occurrence of bony repair to fill in the gap caused by the tearing apart of the bodies of the vertebræ is, of course, an essential one. If there is to be no bony repair the operation is useless. It is asserted (Ménard) that in Pott's disease bony repair occurs, not in the bodies of the vertebral column, but at the sides and back. But Regnault quotes a specimen in the Musée Dupuytren, where a gap exists in a diseased column, but the column is stable. One must remember, as shown by experiments on the cadaver, after rectification, that the gap to be filled may measure two to six centimeters or more. No pathologic evidence beyond the specimen of Regnault has been adduced to show that bony repair of the vertebral column of a character likely to support weight is likely to occur. Chipault, the modern originator of the method of forcible correction, and the predecessor of Calot, who seems to have reaped the glory, lays much stress upon ligature of the spinous processes in Pott's disease; not only does he ligature them after forcible correction, but as a routine method of treatment of Pott's disease in children even before the occurrence of deformity he advises "ligature by a silver wire of the spinous apophyses corresponding to the diseased region, a ligature followed by immobilization." A stout silver wire is twisted from one spinous process to another, so as to embrace and steady the whole area affected. After forcible correction Chipault has either wired the spinous processes together or has clamped the laminæ together by an appliance somewhat like Malgaigne's patella hooks. A column supported in this way has, he says, double the strength of the intact column. Upon this ligature Chipault insists as one of the essentials, not only of forcible correction but of all treatment of Pott's disease in the active stage. Relapse, without this is, he says, most likely to occur. Calot claims that bony tissue fills up the gap caused by the separation of the vertebral surfaces on the ground that radiographs show it, instancing one where there were seen two beams of bone stretched across the gap after an interval of three and a half months, eight to ten millimeters thick and two centimeters long. Again, he says that where the operation is done in two stages, weeks or months apart, distinct snaps of bony tissue are felt at the second redressement. Ducroquet has brought forward radiographs which are said to show bony repair of the gap in the vertebral bodies. The reproductions of these radiographs in his (Calot) article is far from satisfying one that these statements are warranted by them. The general opinion is that the question of bony repair of the gap in the vertebræ must be regarded for the present as wholly *sub judice*. Such a process is not in line with the general behavior of bone when affected by tuberculosis and disturbed by traumatism. It can not be dismissed as impossible, nor can it yet be accepted as proved to have occurred after the forcible correction in Pott's disease. If bony repair of the gap does not occur the operation is of questionable ultimate utility unless the spinous processes are wired, as advised by Chipault. Among those who have reported relapses are Pean, Phocas, Tausch and Lorenz and Vincent. 3. One would suppose that such operations must be attended by risk to life, but the reported casualties are surprisingly few. The cord and membranes in experiments on the cadaver have not shown signs of injury. Ménard in correcting the deformity on the cadaver ruptured a prevertebral abscess which would have found its way into the mediastinum during life. Lorenz speaks of a case where an operation was undertaken to arrest a threatened paraplegia; permanent paralysis immediately followed of a severe type. In addition to these dangers, hemorrhage, opening up of tuberculous foci, injury to intrathoracic vessels, etc., are advanced as theoretic possibilities. It is obvious that in old cases where union has occurred fracture of the spine will result from attempts at correction sufficiently forcible. Such an accident is reported by Malherbe, where a deformity has existed for eight years in a patient twelve and a half years old. The results quoted are surprisingly good. Calot comes first with 204 forcible corrections. There were no accidents, no deaths on the table. Two children died inside of three months, one of broncho-pneumonia and one of meningitis. In eight cases of paralysis, six cures resulted within eight days. In one case partial paralysis came on some days after correction. Twenty of his operated cases walk already; but his end results are too recent to be worthy of serious consideration. He states that the X-ray shows the process of repair to be finished five to ten months after operation, sometimes requiring fifteen months. The criticism of Calot's figures made by M. Monod seems reasonable. In a critical report of the papers of Chipault, Calot and Ménard he made the statement that the statistics of Calot

were too good, and for that reason would not carry weight. On the other hand, it must be remembered that Calot operates at Berck sur-Mer under the most favorable hygienic conditions; and, as one of his critics said, could venture on things unsafe in cities. Chipault has operated for four years. He says there are many relapses, and that unless the apophyses are fastened together, practically all will relapse.

In England, Jones and Tubbey have done eleven reductions. In six they obtained immediate and complete rectifications, in five only partial. Lorenz has been already quoted with one case of paralysis, and at the same time relapse of the deformity. Jonnesco reported three deaths in thirteen reductions, one from chloroform, one death unexplained by autopsy forty-eight hours after reduction, and one death from bronchopneumonia after eight days. Most of the series of cases are, however, much more favorable. As far as figures go to show immediate dangers, one must admit that if representative cases are reported, the immediate results are altogether more favorable than could have been predicted on theoretic grounds. The limit of applicability is indefinite. Cases of three and four years' duration have been often corrected, and adults and children have yielded equally good results. Calot makes in doubtful cases traction of 40 to 80 kilograms; and if there is no yielding he stops. Very old cases are obviously unfit for such operation. In two such cases, however, Calot has done a cuneiform resection of the posterior parts of the vertebræ and has thus accomplished reduction. This method, of course, diminishes the chest capacity markedly. The technique is simple, the patient lies prone and is pulled apart by strong assistants pulling on the arms and legs so as to distract the vertebræ at the seat of disease. Jeannel of Toulouse, and Vulpius of Heidelberg, use pulleys and bands for distraction in place of assistants, and the latter advocates suspension by the heels as the most available position for correction, and the application of the jacket. Calot advises as the first step of the operation the removal of the spinous processes of the diseased vertebræ through a longitudinal incision which is at once sewed up. This is advocated on the ground that pressure can then be made by the flat of the hand in rectifying the deformity, which is more accurate than pressure on each side of the spines; and it is said that sloughs are much less likely to form under the jacket. On the other hand, it is claimed that the removal of the spinous processes weakens the already diseased and unstable column. Traction of 20 to 80 kilos is made by Calot, according to circumstances, and then the surgeon standing over the patient presses downward on the boss with short jerks, exerting a pressure from 15 to 40 kilos. The deformity generally yields with a succession of snaps or suddenly and easily. The patient is then held with the spine overextended while a plaster cuirass is applied reaching from the top of the head to below the pelvis. This is changed every three or four months. Sloughs are likely to occur, especially on the occiput and over the boss. Recumbency of some months is advised, and the indication, according to Calot, for the upright position unsupported is afforded by the X-ray, which shows the formation of bone. All this seems to the American reader very indefinite and vague. Chipault lays the patient, after the operation, on an elaborately arranged board for hyperextending the spine.

Such is the literature as it stands. Lorenz and Ménard are the chief critics; Chipault, the real reviver of the method, is conservative and cautious; Monod is judicial and sceptic; the majority are enthusiastic. Theoretic objections are all very well; but every new operative method has had to meet them at the outset and either disprove them or be itself discredited. The operation attacks, not Pott's disease, but the deformity of Pott's disease, which is not the worst feature of the affection. It expects of tuberculosis of bone a reparative power and a behavior in general which it does not possess in general. It is not apparently attended with much risk, but its real utility in *permanently* maintaining the improved position is yet to be proved. The operation is apparently not particularly dangerous. One need not use in all cases an obviously unreasonable amount of force, as advocated by Calot, but several gentle rectifications may follow each other. Paralysis may often be cured; the deformity may be largely corrected, temporarily at least, in recent cases; and in view of the decidedly unsatisfactory status of the present treatment of Pott's disease, the method is bound to be used, probably abused, advocated and decried until finally it finds its real level and is estimated at its true value. What that real value is no one can tell until much time has elapsed, time enough to show ultimate results. There has been yet no interval for the discussion of anything more than immediate results regarded in the light of the slow progress of tuberculosis of bone. Neither is it possible to say yet just which cases are best suited to this treatment. They must obviously be recent cases, that is, cases without anchylosis; and adults and children are apparently equally amenable. Beyond this nothing definite can be said. The method is of value in one way, even if time should prove it in every other to be worthless, which is altogether unlikely. It has shown us that an ambulatory apparatus can be applied which shall hold straight even a vertebral column where the bodies of the vertebræ do not exist but where they only bound a gap. But this apparatus must include the head and shoulders. If this turns us aside temporarily from our routine of braces and jackets to remember that body weight can be supported elsewhere than on the vertebral bodies, if we are only willing to use sufficient apparatus, the method of Calot, or rather Hippocrates, will have helped conservative methods and given new energy to the efforts to prevent deformity.—Lovett in *Boston Medical and Surgical Journal*, March 10.

We notice also in the *Centralbl. f. Chir.* of March 26, a later communication on the subject from F. Lange, who recommends a cast after forcible rectification, which only extends from the clavicular to the inguinal region, as he has found the Calot corset not only clumsy, but almost sure to produce various disturbances in the circulation of the neck and head. The cast is applied especially tight in front over the upper half of the sternum and the front edge of the ilium, and behind, at the region of the lower ribs, with a large opening cut out over the abdomen. It holds the spine in perfect lordosis without interfering with the arms or out-of-door life of the child. He adds that physicians now should never allow spondylitis to progress to actual deformity, and maintains that all the benefit of reduction, except in extreme cases, is in straightening the healthy parts around the boss. This paragibbous rectification, as he calls it, while free from all the dangers of the actual gibbus reduction, is equally effective and can be performed without narcosis, which is especially dangerous in these operations. He even asserts that in many cases with perfectly satisfactory results, in which it was supposed the gibbus had been reduced nothing but a paragibbous reduction had been accomplished after all, which could have been performed fully as well without the narcosis.

Spanish Destroyers and Torpedo Boats Destined for Cuba.—The *Scientific American* of March 19, represented an illustration of several of the destroyers, torpedo boats and torpedo gun-boats destined for service in Cuban waters. We quote: The first division, which include the torpedo boat destroyers *Pluton*, *Terror* and *Furor*, and the torpedo boats *Rayo*, *Halcon* and *Azor*, is under the command of Fernando Villaamil. The second division will consist of the torpedo boat destroyers *Osado*, *Audaz* and *Proserpina* and the torpedo boats *Ariete*, *Habana* and *Barcelo*. These boats are the pick of the Spanish torpedo flotilla. They present the very latest developments in torpedo boat design, and one of them, the *Ariete*, was at one

time the most notable vessel of its kind in the world. This little craft is a torpedo boat proper as distinguished from the later destroyers. She was built to the order of the Spanish government in 1887, by Thornycroft of London, and on her trial trip broke all existing records by maintaining a speed of 26.1 knots per hour. This was considered phenomenal at the time, and remained for several years the record speed for a steam vessel; indeed, it was not until such large vessels as the *Havock* and *Hornet* made their appearance in 1893 that her performance was surpassed. The *Ariete* is 147½ feet long and of 97 tons displacement. She has 1600 horse power and carries an armature of four 3 pound rapid-fire guns. She is provided with two torpedo tubes. The *Rayo* is a sister boat to the *Ariete*, was also built by Thornycroft, but is credited with half a knot less speed. Of the other three torpedo boats, the *Azor* and the *Halcon* are larger boats of 108 tons. They have the same horse power but two knots less speed. Their armament is the same, but they carry an additional torpedo tube. The *Habana* was built by Thornycroft in 1887. She is a small boat of 59 tons displacement, has two torpedo tubes and has 21.3 knots speed. The *Barcelo* was built by Normand, well known as the inventor of the boiler which bears his name and by the successful torpedo craft which he has turned out. She is of 66 tons displacement and 19½ knots speed and carries two torpedo discharges. All of these boats are designated as first-class and are comparable in speed and equipment with similar boats in other navies. The strength of this flotilla lies in its brand new destroyers. The destroyer is an enlarged torpedo boat provided with sufficient size and power to enable it to keep the sea with a fighting fleet, something that the torpedo boat can not do. In the course of the English naval maneuvers it was soon discovered that the high speed of the torpedo boat was strictly a fair weather speed, and naval constructors realized that greater weight, size and power were necessary to render these little craft serviceable anywhere outside of sheltered waters. At the same time the enormous increase in the torpedo boat flotillas of other European navies necessitated some defensive action against them, and it was resolved to build a fleet of vessels of from 300 to 400 tons displacement, armed with powerful guns which would be capable of running down and destroying torpedo craft. Of the three which are in active service, the *Furor* and *Terror* were launched in 1896. They are 220 feet long, 22 feet beam and 5½ feet draught, with a displacement of 380 tons and a speed of 28 knots. They have twin engines of 6000 horse power and bunker capacity for 100 tons of coal. There are two torpedo tubes and the complement of men is 67. The armament is heavy, too heavy according to the ideas of our own designers, consisting of two 12-pounder rapid-fire guns, two 6-pounders and two 1-pounders. The 12-pounder fires a 3 inch shell weighing twelve pounds with a velocity of 2200 feet a second, which is capable of penetrating eight inches of iron at the muzzle; so that it can be seen that one of these boats could annihilate a torpedo boat as soon as it had run up within range. Of the four other destroyers, one, the *Pluton*, is already in service, and the other three, the *Audaz*, the *Osado* and the *Proserpina*, will sail at an early date. These four are identical in all respects and they have the characteristic of being considerably the largest destroyers in the world, being over 100 tons greater displacement than the largest English boats of this type. Their speed, however, is not so great by two knots. The particulars are as follows: Length, 225 feet; beam, 22½ feet; draught, 5.8 feet; displacement, 400 tons; speed, 30 knots; horse power, 7500; coal capacity, 100 tons; and complement of men 70. They carry two torpedo discharges and their armament is identical with that of the *Furor* class. In bringing these boats over the Atlantic everything will be done to guard against accident and disablement in heavy weather, especially in the case of the smaller boats. The guns will be unshipped to reduce top weight and provide additional coal-carrying capacity for the long journey.

PRACTICAL NOTES.

Salve for Acute Articular Rheumatism.—Sodium salicylate, 30 grams; iodoform, 10 grams; vaselin, 100 grams; extract of hyoscyamus, 5 grams. For external use.—*Nouv. Remèdes.*, February 24.

Lupus Cured with Inoculations of Blood from Erysipelas Patches in Another Patient.—A severe case of chronic lupus of the face, closing the mouth so that speaking was impossible and no solid could be taken, the eyelids also swollen together, is reported.

Antipyrin in Sciatica.—If injections of antipyrin do not always relieve sciatica it is because they are not made deep enough, so as to bring the analgesic actually into contact with the nerve trunk.—Kuhn in *Sem. Méd.*, March 10.

Radiocondenser.—A cone-shaped lead tube to conduct the rays to the screen is the latest improvement in radiography. The entire strength of the rays is thus concentrated.—*Bull. de l'Acad. de Méd.*, March 15.

Spray for Dry Pharyngitis.—Phenic acid, 4 grams; tincture of iodin, 50 centigrams; tincture of aloes, 40 centigrams; tincture of opium, 10 drops. Glycerin q. s. to make 30 grams.—*Nouv. Remèdes*, February 24.

Nervous Grip.—G. Baccelli recommends the following powders for nervous grip with hyperthermia: Quinin salicylate, 20 centigrams; phenacetin, 15 centigrams; camphor, 2 centigrams; for one powder. Take two to six powders during the twenty-four hours.—*Sem. Méd.*, March 10.

The Favorable Action of Convallaria Majalis in dropsy of renal or hepatic origin has been announced by Janowski, who prescribes it in an infusion of 4 grams of the plant to 180 grams of water, a tablespoonful every two hours, changing later to a 1 to 12 alcoholic tincture, of which 45 to 80 drops are taken during the day. It also favorably influences the diuresis in hepatic cirrhosis.—*Sem. Méd.*, March 10.

Albumin Tannate as a Preventive of Diarrhea.—L. Roemheld has found that the diarrhea which so frequently accompanies the use of cod-liver oil or calomel, can be prevented by administering 2 to 4 grams of albumin tannate during the day. Fifty rachitic children thus treated were enabled to continue taking the cod-liver oil for months, while diarrhea occurred at once if the tannate was suspended.—*Nouv. Remèdes*, February 24.

Effect of Diphtheria Antitoxin on the Kidneys.—Rojanski has been studying the effect of small preventive doses (2 to 3 c.c.) on the action of the kidneys in seventy-three cases, and finds that it has no deleterious influence. No traces of albumin were discovered in the urine. He also reports a case of severe scarlet fever and nephritis in which diphtheria supervened, and larger doses of the antitoxin (10 c.c.) were administered. The diphtheria was arrested at once, and the nephritis also seemed to be favorably affected and retrogressed, although more slowly.—*Revue de Chir.* from *Botkine's Gazette*, 1896, No 36.

Inflammation of the Sinuses of the Face are so frequent that they are found in 20 per cent. of the necropsies, and in 90 per cent. of those preceded by grip. V. Boland recommends remaining in bed if there is much reaction. Sudation with pilocarpin will sometimes afford much relief. He advises Moure's inhalations of the following: Add to a hot infusion of aromatic herbs a teaspoonful of the following: Pure alcohol, 150 grams; menthol, 5 grams; eucalyptol, 5 grams; oil of gaultheria, 5 drops; inhale for five minutes four times a day. Lermoyer recommends the following: Pure alcohol, 100 grams; menthol, 5 grams; add a tablespoonful to a bowl of hot water and inhale by the nose through a funnel for five minutes, every two hours. The Politzer douche cleanses the sinus in some cases. The contents of the sinus can also be aspirated out sometimes by deep inspirations, with the mouth and nose tightly closed. —*Gaz. Méd. de Liège*, March 17.

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SATURDAY, APRIL 23, 1898.

THE PHYSIOLOGIC EFFECTS OF EXTRACTS OF THE HYPOPHYSIS CEREBRI AND INFUNDIBULAR BODY.

The hypophysis cerebri, or pituitary body, is currently described as being composed of two lobes; the anterior, larger lobe, is embryologically described as arising from the epithelium of the mouth cavity, its glandular structure resembling in many respects the structure of the thyroid gland. It is stated by HALLER[1] that it possesses an incomplete system of ducts that open between the meninges. In a recent article, W. H. HOWELL[2] maintains that, properly speaking, the term hypophysis cerebri should be restricted to this lobe. This significance is now given the term by most morphologic writers, but human anatomy commonly includes the so-called posterior lobe as well.

The posterior lobe lies upon and is partially covered in by the hypophysis proper, and it will be recalled that it is connected by a stalk to the infundibulum, and that embryologically it is regarded as an outgrowth of this part of the brain. For these reasons it would indeed seem quite desirable to speak of this posterior lobe as the infundibular body.

This body is small as compared with the hypophysis proper. The only satisfactory study of its histology is that by BERKLEY,[3] who used the Golgi method, and reports a complicated and curious structure. There are many nerve cells, a cortical layer of ependymal cells, neuroglia tissue, peculiar structures resembling nerve-end-organs, and also a quantity of epithelial cells arranged in part to form tubes enclosing glandular-like vesicles, some of which contain a colloid material Now, this rather complicated make-up would indicate that the infundibular body is not merely a rudimentary organ, but that the glandular tissue may possess a secretory activity of some kind.

Following the recent modern methods of studying the physiologic actions of the so-called ductless glands, the investigators have also attempted to study the action of the extracts of the hypophysis cerebri. SZYMONOWICZ[4] states that in experiments of this kind made upon dogs, there was a fall of blood pressure and a quickening of the heart beat; in other words, just the opposite of the phenomena observed after the injection of the adrenal extract. OLIVER and SCHAEFER[5] obtained different results. Their extracts of the hypophysis caused a marked rise of blood pressure with increased force of the heart beat, results which resemble the action of the adrenal extract, with these differences, however, that there was in the case of the pituitary extracts no slowing of the heart beat.

The somewhat contradictory results obtained by these investigators led HOWELL to make further experiments of the same nature, but with this very important modification, viz.: that in his experiments extracts were made both of the hypophysis cerebri, or anterior lobe, and of the infundibular body, and the effects of these were tested separately by injection into the circulation of anesthetized dogs. In most cases glycerin extracts were made from the fresh tissue; the two lobes were first separated and then rubbed to a creamy pulp with a small quantity of glycerin. The mixture was then allowed to stand for several hours, when it was diluted with a few cubic centimeters of normal saline solution and filtered.

In most of the experiments the gland from the sheep was used, because it is larger than that of the ordinary laboratory animals, as for instance the dog, and also because it was readily obtained at the slaughter houses and easily removed from the skull. The facts obtained by injection of the two different extracts were as follows:

Extracts of the hypophysis alone caused little or no recognizable change in the blood pressure or heart rate, and HOWELL concluded that upon the whole the extracts of this body have no definite effect upon the circulatory or respiratory organs.

With the extracts of the infundibular body the results were marked and quite constant. The main effect was a pronounced slowing of the heart but with an increase in the blood pressure. When the vagi were cut there was a prolonged rise in the blood pressure, but a slower and stronger heart beat. As compared with the adrenal extracts the effect of the extract of the infundibular body is characterized by its long duration. The pressure rises more slowly, remains above the normal for a longer time, and sinks

[1] Morphologisches Jahrbuch, XXV, 1896.
[2] Journal of Exp. Medicine, Vol. III, No. 2, 1898.
[3] Johns Hopkins Hospital Reports, IV, 1895.
[4] Pflüger's Archiv, 1896.
[5] Journal of Physiology, 1895.

gradually. If repeated injections are made the effects may be much less marked or may fail altogether, the results depending in this respect upon the time between the injections and also upon the amount of extract used. The loss of reaction following repeated injections is much more marked than in the case of the adrenal extract. It would seem as though the organs affected acquired an immunity from the active substance of the extract, but how long this immunity may last HOWELL did not attempt to determine. Neither has he yet attempted to determine what the nature of this remarkable substance is.

The fact that the physiologic reaction of the extracts of the infundibular body differ so very markedly from those caused by extracts of the hypophysis cerebri, in connection with the differences of structure, differences of origin, show that that they are physiologically and anatomically independent structures. The marked influences of extracts of the infundibular body suggest that this organ may produce a secretion of great importance to the functional activity of the organs of circulation. And certainly this tends to disprove the view that the infundibular body is merely a functionless rudiment.

THE BACILLUS MUCOSUS CAPSULATUS (BACILLUS OF FRIEDLAENDER).

Since the first description by FRIEDLAENDER in 1883, and by WEICHSELBAUM three years later, of an organism which was first called a coccus (pneumococcus of FRIEDLAENDER) and later regarded as a bacillus, occurring in acute fibrinous or croupous pneumonia, this bacillus has been found by many observers in various inflammatory processes in the lungs and other organs.

As specific characteristics of this organism were pointed out, its raised mucus-like growth on agar and blood serum, its nail-shaped growth on gelatin, its yellowish-gray growth with gas formation on potato, its failure to coagulate milk, absence of indol reaction, and decolorization by Gram's method of staining; it was generally found to be constantly pathogenic for mice, variably so for guinea pigs (fatal in about one-half of the cases), rabbits and pigeons, and finally its polymorphism and capsule formation were regarded as quite specific. From time to time bacilli differing in some respects from the foregoing description have been met with in pneumonia and other affections, especially in inflammations of the middle ear and upper air-passages, as well as in the peritoneum, liver, kidneys and bladder, and lately also in the accessory sinuses of the nose. For these reasons there have often appeared in recent literature descriptions of a new bacillus pathogenic for man. Most of the authors have pointed out the striking similarity between these various organisms and the bacillus of FRIEDLAENDER. More or less striking differences in growth and other characteristics have nevertheless been assigned as sufficient reasons for establishing new classes.

The bacillus of FRIEDLAENDER, often called the pneumo-bacillus or capsule bacillus, is stated by HONL to occur in from 5.5 to 8 or 10 per cent. of the cases of croupous pneumonia, and more frequently, alone or with other bacteria, in bronchopneumonia. It is not uncommon in the usual complications of these affections. It has also been found alone, or with other bacteria, in inflammations in the liver, kidney, bile passages, lachrymal gland, in the nose in rhinoscleroma, in ozena, in the accessory sinuses in the nose, and in hemorrhagic septicemia of the new-born. It has also been demonstrated in the saliva of healthy mouths, in healthy noses, in the ground, dust and air.

FRICKE has been able to collect twenty-two bacilli from the literature which resemble the bacilli of FRIEDLAENDER. He points out the many identical features and includes them in one single group, with that of FRIEDLAENDER as the type. He proposes as a name for this group the *Bacillus Mucosus Capsulatus*. He has found such organisms thirteen times, often mixed with pus cocci, in the tympanic cavities of thirty-two cases of otitis media, in one case in the antrum of Highmore, in ulcerative endocarditis, in the stools in seven cases of gastro-enteritis. He makes the differences in the pathogenic actions of these bacilli the basis for two groups. In the first group he places those bacilli that kill white mice after subcutaneous inoculation and which have none, or only a passive pathogenic action, when inoculated into the abdominal cavity of guinea pigs and rabbits. In group two are included those forms that are not pathogenic for mice on subcutaneous inoculation. Most of these were pathogenic for guinea pigs.

FRICKE insists that the so-called ozena bacillus is identical with the *bacillus pneumoniæ* of FRIEDLAENDER. FRAENKEL, PAULSEN and ABEL have all described a mucus-like encapsulated bacillus in connection with ozena. Very recently W. T. HOWARD, Jr.,[1] of Cleveland, Ohio, from whose article the above facts are abstracted, has briefly described ten cases in which he encountered the *bacillus mucosus capsulatus*. These cases varied very much as to the nature of the lesions. Four concerned purulent discharges from empyema of the antra or frontal sinuses; one was a case of puerperal septicemia; another was a case of peritonitis and pyelitis after obstruction to urinary outflow from enlarged prostate. Another was a case of chronic peritonitis in a girl eight years of age, the peritoneal cavity containing a large amount of thick, creamy, tenacious pus, which on microscopic examination showed pleomorphic capsulated bacilli, and the culture showed a bacillus identical with the bacillus of FRIEDLAENDER. Another case was one of acute croupous pneumonia, with general febrinopurulent peritonitis. The bacilli found in these cases did not agree with each other in all respects, differing

[1] Phila. Med. Jour., Feb. 19, 1898.

especially in the varying amounts of gas production and varying in pathogenesis for guinea pigs and rabbits. HOWARD concludes that this bacillus is much more commonly associated with acute and chronic infectious processes than is generally believed.

JOSEPH J. CURRY[2] considers the *bacillus capsulatus* with especial reference to its connection with acute lobar pneumonia. He found it as a pure or mixed infection in twelve cases of various kinds including acute fibrinous pneumonia, acute endocarditis, otitis media, diphtheria and tonsillitis. The connection of the *bacillus capsulatus* with acute croupous pneumonia is especially interesting. The routine bacteriologic examinations of pneumonia as carried out in the Boston City Hospital, for instance, have shown that it is invariably due to the *micrococcus lanceolatus*. One of the cases referred to by CURRY throws considerable light on the cases of pneumonia which have been considered as due to the capsule bacillus in so far as it demonstrates that the growth of this bacillus may be and usually is so profuse as to obscure the growth of the diplococcus; examination of the sections from the lung in this case by the Gram stain, as well as with methylene blue, showed that the bacilli were, as would be expected, decolorized by Gram's method, while the diplococci were present in large numbers in the alveoli and in the pleural exudation; with the methylene blue stain the bacilli were found quite numerous, chiefly in the bronchi.

SCIOLISM AND SUPERSTITION.

Some two or three years ago an essayist in a popular review, under the title of "The Recrudescence of Superstition," tried to prove that with all our boasted progress, there was evidence that the world was going backward in at least one respect—that instead of becoming more emancipated from degrading superstitions mankind was getting to be more and more their slave, and adopting ideas and practices that better fitted the middle or the so-called dark ages than the present time. It was, as one might naturally suppose, a partial view and not a judicial statement of facts; the author focused his attention on certain facts that have existed from all time and ignored the real prevailing conditions about him. Men have always been more or less superstitious, and no amount of culture can entirely make them anything else, and in the uncultured the grossest beliefs have at all ages, not excepting our own, found their supporters. Human credulity is an indefinite quantity and it would be a rash man who would venture to set its limits.

No one has a better opportunity to observe this fact than the physician, one might say perhaps "the regular physician," for there is altogether too large a contingent of those whom the public regards as physicians, who live and thrive by encouraging some form or other of misdirected medical belief, and who, if honest, can hardly be considered as capable of taking, so to speak, an external and impartial view of such delusions. There are even "regular" physicians who from some peculiarity of mental constitution, are incapable of distinguishing between science and pseudo-science, and are therefore sometimes carried away by pretentious theories supported only by a confused and confusing jargon of misused technicalities, and it may be the revival of some antiquated but still somewhat specious delusion in physics or philosophy. With the laity, medicine, in its popular acceptation, is still to a large extent what it was in MAGENDIE'S time, "the grand idol of human credulity"; there is hardly anything so absurd as not to command some one's faith and domestic practice. Christian science, which is apparently supplanting homeopathy as a female cult, osteopathy, and all the other "pathies" and "isms" that are rampant at the present time, are sufficient evidence of this fact.

The JOURNAL not long since editorially noticed the appearance in a respectable medical publication of the lucubrations of a Washington pseudo-scientist who, in despite of physical laws, claimed to be able to cut visible sections of less than one-hundredth of a micrometer, and to infinitely increase the magnifying power of microscopes and telescopes, so that, judging from his pretensions, one might assume that the infinitely distant and the infinitely little would be yet revealed from the satellites of the fixed stars on the one hand to the vortex gyrations of the ultimate atoms on the other. This passed for science sufficiently to be noticed without specially adverse comment in popular scientific serials, so that possibly one should not too severely criticise the medical editor who passed the contribution as suitable for publication. But when we see articles in what we may call at least a semi-medical journal, supporting "psychometry," the juggling of the clairvoyant, and that gypsy specialty, palmistry, as having not merely a real value and truth, but as supported by physiologic and anatomic facts, we can reasonably wish, for the credit of our profession, which in a way is the sufferer, that the editor had been more discriminating. The discussion that once ran through a leading foreign medical journal on the deleterious influence of the accidental presence of a menstruating woman during the process of curing hams, was, in its way, much more respectable; it gave only the individual expressions of honest ignorance and superstition, while such publications as are here referred to are ignorance and superstition invested in a pretentious sciolism, which adds a sort of element of fraud, unconscious though it may be, to the delusion.

All men, learned or not, may be assumed to be still somewhat superstitious, or to have at least the possibility of it in their composition. There is enough

[2] The Journal of the Boston Society of Medical Sciences, March, 1898.

of the mysterious and incomprehensible about us to almost justify it in the ignorant, and no one should know this better than the medical man. He can while honestly admitting the limitations of his own knowledge, be philosophically tolerant of the weaknesses of others. It is harder, however, to be tolerant with those who, adopting the superstitions of the ignorant or denying their own limitations, endeavor to bolster up their delusions with their half-digested acquisitions of scientific terminology and theories.

THE RELATION OF THE PHYSICIAN TO THE PURITY OF DRUGS.

The old saying "none are so blind that they will not see," is well exemplified by the lack of regard shown by some physicians concerning the conditions as to purity and excellence of the medicines which they prescribe. The surgeon usually has sufficient acumen to recognize the fact that his instruments must be thoroughly reliable if creditable results are to be reached and after some years of experience he learns to regard a certain manufacturer's products reliable and usually purchases his supplies from that source until some accident reveals to him that his confidence has been misplaced. Not so with the physician who writes a prescription for his patient and sends him out to get it filled by whom and where he will, or who for motives of economy purchases for his own dispensing cheap pharmaceutic products which must needs be uncertain in their effect. Can anything be more suicidal from the point of view of the man who desires to be ranked as a successful practitioner, and can anything be more futile than his attempt to treat serious maladies with preparations which are to good drugs what a jack-knife is to a well made tenotome.

Our attention has been called to this fact so often that we are apt to regard a failure to produce an expected effect rather as the result of some such fault than as an evidence of our having been mistaken as to the diagnosis of the disease or the remedy needed. Some years ago a drug firm in the Atlantic States purchased a large amount of impaired and damaged pharmaceutic products of all sorts and then marketed them by sending travelers to the office of hundreds of physicians who for the sake of saving a few cents on every thousand pills, or tablets, not only impaired their professional reputation by their use but were guilty of a breach of trust in that they in one sense innocently used feeble remedies in serious maladies when their patients placed their confidence in the physician doing the best for them that was possible.

Since that time other evidences of a similar lack of the ability to perceive what is for our best interests have been made manifest and time after time physicians fail to get effects because the original drug is poor or the dispenser careless in the preparation of the finished product.

A visit to the store of any wholesale drug house will reveal various grades of almost every drug. The best grades are at a high price, the poorer ones at much less cost. The druggist with the theory of "save a penny, lose a pound," purchases the cheaper grades and is fortunate if his medical and lay patrons do not discover him.

Finally, there exist men who, with more of an eye to the dollar than to humanity, deliberately take it upon themselves to adulterate pure drugs and thereby cheat the sick not only of their money but perhaps of their lives.

This editorial is not the place to discuss the well-worn theme of substituting one article for that ordered, on the ground that it is "just as good," bad as the results of such action may be. It is the place, however, for us to insist on the physician forearming himself against such evils as may impair his career and cause his patients suffering. With the large manufacturing chemists, who by buying enormous quantities of crude drugs can get pure ones at as small a price as the individual druggist can buy poor drugs and who place upon the market accurately prepared, chemically assayed or physiologically tested products there is no reason why every physician and patient should not use the best the world affords.

That the views just expressed are correct is evidenced by the following facts derived from the *London Pharmaceutical Journal* concerning adulterations in England and from the *Pharmaceutical Era* as to adulterations discovered by the Massachusetts Board of Health. The first journal tells us that: the Local Government has published its twenty-sixth annual report, according to which there were 1380 samples of drugs analyzed by public authority in 1896, of which 156, or 11.3 per cent., were found to be adulterated. The percentage for the past four years has been about 11 per cent., so that last year was not much above the average. Of niter (? spirit of nitrous ether), 51 out of 196 samples were condemned; of rhubarb (? tincture), 22 out of 128; and of ipecacuanha wine, 10 out of 29. The purity of beeswax was well looked after during the year, 10 out of 46 samples being condemned. One was a mixture of about 30 parts of resin to 70 of ceresin, while another contained 75 per cent. of paraffin and only 25 per cent. of genuine beeswax.

As the *Pharmaceutical Journal* well says: "The only way to extinguish adulteration, is to render it unprofitable; and it is observed in the annual report just quoted, that many local authorities have represented the inadequate fines repeatedly inflicted by magistrates to be an encouragement to adulteration."

In Massachusetts the principle articles found to be adulterated or below the standard were ether, alcohol, ammonia water and chlorin water, distilled water (in this article the solids varied from 0 to 73 per 100,000

parts), extracts of licorice and nux vomica, powdered opium, compound spirits of ether, spirits of nitrous ether, whisky, tincture of iodin, syrup, tincture of opium, mercurial ointment, white and red wine.

On the selfish basis of professional success, on the sacred basis of the care of human life, with all that its loss means, let us see to it that our medicines are as pure and capable for the combatting of disease as are the appliances used by the surgeon, who is better off in that he can watch their affects every second and see the area he is operating upon.

THE COMING WAR IN CUBA.

The all-absorbing topic of the week among all classes of people is the question of war. Naturally the physicians are as much interested as any particular class, and much speculation is being indulged in, especially by medical officers of the National Guard, as to the climate of Cuba with reference to service on that island.

In regard to the danger from yellow fever, it is proper to say that the Surgeon-General of the Army, Surgeon-General STERNBERG, is probably as familiar with the conditions as any one in the United States, and it is safe to trust his advice in all those matters. It is, however, not out of place to state that the island is a mountainous one, and if the troops are kept out of the cities as far as possible there will be but little danger of contracting yellow fever.

The boiling of all water the exact composition of which is unknown, is imperative. Besides this, a handy individual pocket filter can be improvised by using a soft rubber funnel provided with a tube; inside of the rubber funnel place one or two layers, as may be desired, of filtering paper (a small package of which should be provided in each knapsack, to be used sparingly as the occasion requires), hold the funnel high, and pour the water through it into the canteen. When not in use the funnel is rolled up and put in any handy pocket, or the haversack.

In regard to the general hospital and field hospitals, there is no tropical country which affords more sites for general hospitals in the mountains than the Island of Cuba, and the fatuity of the Spaniards in placing so many sick soldiers in the infected military hospital on the shore of the stagnant arm of the Bay of Havana, is a melancholy spectacle of incompetent administration. Even at Mariano, but a few miles from Havana, it is well known that yellow fever is infrequent, and it is vastly more healthy than the city. The mountain range of Cuba extends along the whole island, commencing with the sharp peak Pico Turquino 8240 feet high, and extending as a backbone along the island. The hills near Matanzas rise to an elevation of nearly 1200 to 1300 feet, and there is no question that the interior of the Island of Cuba is as healthy as any country in the tropics. If proper precautions be taken, there is no question but immunity from yellow fever can be secured by the rigid observation of sanitary regulations, and prompt isolation of any infected case among the troops that may arise through carelessness or faulty hygiene.

MILITARY SURGEONS.

The meeting of the Military Surgeons at Kansas City in May next may be interfered with owing to the fact that so many of the officers will be otherwise engaged than attending medical conventions. The same reasons interfere with the meeting of the American Surgical Association at New Orleans this week, but to a less degree.

CORRESPONDENCE.

The Serum Treatment of Tuberculosis.

ST. LOUIS, MO., April 11, 1898.

To the Editor:—In Dr. Waxham's letter on the above subject in your issue of April 9, Dr. Waxham asks, and the question is a fair one, why no criticism was made on the reports of the serum treatment in two papers in your issue of February 5, "in which sixteen cases were reported, of which fourteen were chronic cases, having existed from one to eleven years," and suggests that it may have been because those reports were more favorable.

It has been the practice of Messrs. Jno. T. Milliken & Co., on receiving first applications for serum, to caution the prospective users as to the limits within which claim is made for its usefulness. Dr. Waxham was himself so cautioned, for I find in my letter to him of Nov. 13, 1897, the following words: "Of course I need hardly say that its chief use lies in the early stages of tuberculosis. It can scarcely be expected to renovate organs which are in a state of absolute structural disorganization." To a man of Dr. Waxham's professional standing any more explicit statement seemed uncalled for.

That being the rule, there was no occasion to criticize the reports of February 5, to which Dr. Waxham refers; nor would any criticism have been called for upon Dr. Waxham's report, had he not made the assertion therein that "the cases reported would seem to be fair ones with which to judge the value of the treatment." In regard to the claims made for antiphthisic serum, that statement left no alternative but to combat it. . .

Dr. Waxham is, no doubt unintentionally, scarcely fair when he says that Dr. Millican "decides" that all, except possibly one or two cases, were cases of mixed infections. My words were: "It is a fair inference from the clinical reports, notwithstanding the absence of temperature records, that there was mixed infections, etc."

It is neither "proven" nor "admitted" that the serum treatment is a "failure" in long-standing chronic cases of tuberculosis. There are many such on record as either cured or markedly improved thereby, some of which are recorded in the two papers of February 5 referred to. At the same time they are at present regarded as exceptional, and the caution is given that good results ought not to be anticipated in such cases. The question is one of degree, and only to be solved by cumulative evidence of which Dr. Waxham's report will ultimately form part.

Dr. Waxham tells us that "Early cases invariably recover." If that be so, where do the chronic cases come from? . . . Dr. Waxham's concluding advice is certainly sound. The

essence of general medicine lies in giving every therapeutic arrow its place in the therapeutic quiver. "Specialism in Therapeutics" has been that cause of many useful adjuncts being long retarded in their claim for public recognition, e.g., hydrotherapy, electricity, etc. The quacks who claimed to treat all diseases, and all cases thereof, by these methods alone, are responsible for the long delay in their acceptance as very valuable therapeutic measures. The true physician does not seek to establish any "universal or exclusive rule" of treatment, but employs all or any methods, collectively or severally, which according to his experience and what he knows of the experience of others, appear to be suited to the individual case before him. But when a new method is on its trial, it is not fair to discredit it by the assertion that cases clearly outside the claims made for its recognition, are "fair ones with which to judge the value of the treatment."

Were the fourteen cases of February 5 and Dr. Waxham's ten to be taken alone as representing all that is to be said for and against serum treatment in "long-standing cases of chronic tuberculosis," it seems to me that the balance of evidence would be against Dr. Waxham's assertion that serum therapy has been proven to be a "failure" in such cases, though neither could its success be held to be conspicuous. But, as a matter of fact, neither Dr. Waxham's ten cases against, nor the fourteen more or less favorable to, its results in chronic cases, are the evidence of its value in such cases, but parts only of the evidence on which the future verdict will be rendered; and as such are equally valuable, and equally welcomed by honest investigators.

Yours very truly,

KENNETH W. MILLICAN, M.D.

Suggestions Concerning Publication of Association Papers.

To the Editor:—The approaching meeting of the AMERICAN MEDICAL ASSOCIATION, at which, by the way, I propose to present two papers, moves me to write to you on the subject of your methods (rules?) of publication, which I do principally from the standpoint of the reader, for I have no grievance to air, all my former contributions to your columns having been printed in the most satisfactory manner. But the present state of your coulmns, now, in April, publishing many valuable contributions made to the ASSOCIATION last June, and several extremely prolonged communications that have appeared during the year and which have probably been a cause of this undue postponement, together with the preliminary programs already announced for the coming meeting, give rise to the serious apprehension that if the latter are carried out and you are favored with other voluntary contributions extending over months, you will be completely swamped during the next year in a mass of material of very varying degrees of usefulness and interest. Therefore, it seems to me that now, or early in the meeting, would be a proper time to take, before it could be considered to have any personal bearing, a new departure, in the interest of overburdened readers and impatient contributors.

There are certain articles, learned, excellently written, and within their limits useful, which possess but comparatively little interest for the general reader. To be specific, such are translations of historic works, carried out with true German thoroughness and corresponding dulness, which would be excellent for the scholarly surgeon to have in his library but which have no proper place in the pages of anything called a journal.

A year or two ago the proceedings of the ———al Society filled your columns for months with a mass of details, important no doubt to those interested, but conveying little or no meaning, if read, to the vast majority of your readers. An abstract of those papers and discussions in the tenth part of the space would have been of infinitely more use, and would have had twenty readers to every one who gave up the original in despair. The histories of the specialties and the Sections of the ASSOCIATION giving, for instance, the names of officers and papers read for each year of their existence, might better be published in the organs of the appropriate specialties. It is not inspiring to read in the spring of 1898 that in June, 1897, Dr. —— said that the Section on ——ology was organized with Dr. ——, Chairman, and Dr. ——, Secretary, and that Dr. —— read a most able and interesting paper, and so on, for each year of its existence, closing with the statement that the Section has made a most notable contribution to the knowledge of the subject throughout the world, and undoubtedly under the able leadership of the speaker's accomplished successor will still pursue the path of glory and science.

It must be acknowledged, also, that there are some papers consisting of such helter-skelter facts, real or supposed, mixed up with much vague speculation and very likely moral and ethic reflections that would not bear editing, which would spoil their flavor, often unique and racy, but which should not be allowed to take up space unless they have the literary and humerous qualities making them enjoyable and an agreeable relief from severer labors.

Then come the compilations, which, if well done, are often the most useful of all for the busy man, but which may be fit subjects for revision.

I wish to make two alternative propositions: 1. The publication of a daily edition of the JOURNAL during the session, containing an abstract of everything and as many of the general addresses in full as there may be room for, and this edition to be continued long enough afterward to publish everything in full or at least long enough to let the editor see daylight through his mass of copy before the end of the year, with room for something else.

Under the present arrangement the authors are liable to find themselves in the predicament of Mr. Ibsen, who alone, with the exception of the Good Lord, so reticent of important human secrets, knew what he meant when he wrote "Peer Gynt," but has long since forgotten. From such an edition the reader could take what he likes, as we do out of the Sunday newspapers.

2. Subjection of all papers read before the ASSOCIATION, or the more or less affiliated Societies which meet about the same time, excepting always the addresses of Presidents of Societies and the three general addresses, but not excepting the addresses of Chairmen of Sections, to a sufficiently large committee. They should act promptly, as far as possible, during the meetings through subcommittees in each Section, and complete their work within a month, at the end of which authors should be notified of their decision. They should report that a given paper should be published either: 1. In full. 2. In full, omitting the historic introduction. 3. In extracts. 4. In abstract. 5. By title.

If reported in any of these ways, except the first, the author should have the paper or any portions of it omitted, placed at his own disposal to publish as he might see fit, and he should also, if possible, prepare the extracts or abstract desired, within space limits, to be assigned by the committee, when he is notified of their decision. This committee should include two or three members from each Section who could do the bulk of the work during the meeting or within a day, to be afterward completed by correspondence. Such a committee would relieve the JOURNAL of a great deal of dead-weight and the editor of the exceedingly unpleasant task of telling his confrères that their contributions are not available. It would also be possible for such a committee to act by correspondence throughout the year and pass at least upon the longer contributions such as might extend over many numbers.

I am very respectfully,

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Licenses to Practice.

HYDE PARK, VT., April 23, 1898.

To the Editor:—In your issue of the 9th inst. I notice a correction sent in by Dr. Mailhouse calling your attention to the fact that Connecticut now requires an examination for license to practice medicine. I give below a complete list of States now requiring an examination for admission to practice, having obtained the same at considerable trouble and expense for my work on medical education and registration. They are as follows: Alabama, Arizona, Connecticut, Delaware, District of Columbia, Florida, Georgia, Cherokee Nation Indian Territory, (Iowa after Jan. 1, 1899), Louisiana, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Montana, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Oregon, Pennsylvania, South Carolina, Tennessee, (Texas in dispute), Utah, Virginia, Washington and West Virginia.

Idaho had a very good law passed a year ago which has since been declared unconstitutional owing to some irregularity in the Senate records; consequently it will have to be classed in the list of six States which have practically no medical practice laws, viz., Vermont, Michigan, Kansas, Wyoming, Nevada and Idaho.

Ohio and Rhode Island have taken decided steps to prevent medical schools locating in towns of less than 50,000 inhabitants.

Twenty-seven States besides the District of Columbia, Cherokee Nation Indian Territory, and Arizona now require examination for license to practice, of which number seventeen require both diploma and an examination. Some of the States not requiring an examination, as well as some that do, have very stringent rules governing the recognition of diplomas.

A four years' course of lectures, with a very considerable amount of preliminary education as a condition of recognition of diplomas, is demanded by something over a dozen States, in response to which 117 of the 155 medical schools in this country now require attendance on four annual courses of lectures, of which number twenty-seven require attendance on sessions of eight months, and ten of nine months each year. May each and every State soon require an adequate preliminary training and annual sessions of at least eight months instead of six, as some of the second- or third-rate schools will not fall into line until they are driven to it.

Very truly yours,

WILLIAM T. SLAYTON, M.D.

Author "Medical Education and Registration United States and Canada."

Eustrongylas Gigas.

CENTERBURG, OHIO, April 11, 1898.

To the Editor:—On page 717 of the JOURNAL an article appears on the subject of "Eustrongylus Gigas," by Dr. G. W. Morehouse. Having been a neighbor for almost twenty years, and for a number of years the family physician of the patient mentioned, I presume some correction in regard to Dr. M.'s statements might be in order from me. Mr. H. (the patient) is a rather robust man in appearance to the person who would stop with a superficial survey, but to the physician who examines the case will come a revelation, for the man has fatty degeneration and the usual train of general symptoms that follow in the wake of such conditions.

He was a cavalryman in the late war, and since the war has been a merchant until a year ago. Prominent among the symptoms of the above named condition is the heart trouble, on which he was pensioned some years ago. I have watched with interest the case for at least fifteen years, many times during that period I have been called on to relieve him of attacks that came on suddenly, both of heart complication as well as for severe attacks of renal colic. I have helped to take him home many times from his place of business under such circumstances. On March 10, 1896 (date given by Dr. Morehouse), I was attending the case and had been with the patient nearly all night. He was suffering from renal colic; the next day he passed several small calculi, and in a few days was attending to his business affairs as usual. Now note the difference in the records which I have before me, and those narrated in the JOURNAL by Dr. Morehouse.

Fully twelve months after the attack I have just recorded Mr. H. had another severe renal colic followed by quite a hemorrhage, the quantity of blood passed was estimated at fully a pint or more.

A day or two later he passed in the urinal a worm-like specimen about six inches long; with it was more or less débris, consisting of small coagula, etc. He brought the specimen to me, which I examined carefully by shredding it on glass and magnifying. I pronounced it blood fibrin in the form of a cast of the ureter. Several of these passed during the week or two following, none more than seven inches long. As soon as the tendency to hemorrhage ceased no more of the so-called parasites developed.

Mr. H. carried some of these specimens to my friend Dr. F. C. Larimore of Mt. Vernon, who upon examination decided that it was blood deprived largely of its coloring matter by having been held in the ureter. The patient being a man who liked notoriety, carried a few sample "worms" in a bottle to show his friends, and in this way wonderful reports of the case were given out over the neighborhood, and the exaggerated statements of the man himself I think, in a measure, led Dr. Morehouse, who lives in a village a few miles away, to make the report as he did.

Mr. H. as is usual in such cases, drifted into the hands of a specialist who bears a reputation for not being very guarded in his opinions, and who is governed in the treatment of his cases more by the color and quantity of a man's money than anything else. This physician treated him for a time for Bright's disease and later chanced it on "Eustrongylus Gigas."

The difference in opinion naturally prompted me to defend my position. I sent a specimen to a friend of mine in New York (a gentleman who is known to Dr. Morehouse, at least by reputation) who is an eminent pathologist, and his opinion coincides with Dr. Larimore's and mine. His idea was that one or more sharp calculi were in the kidney, and the irritation from their presence provoked the hemorrhage and a temporarily obstructed ureter held the blood until a cast was formed, and as the constriction gave way the worm-like cast passed into the bladder and later out by way of the urethra with the urine. The shreds were only fragmentary blood coagula, etc.

With this explanation I hope those who read the former article, and may read this, will be able to draw some rational conclusions. The case furnishes at least an object lesson for the general practitioner. The patient's health remains much the same as it has been for several years. I see him every day as one of his neighbors. By way of conclusion I might say this, as Dr. Morehouse had never treated the case he reported, and even the specimen of urine he says he examined was voided long after the "passing of the worms" I think his diagnosis has been too hasty and faulty in the extreme.

ROBERT C. M. LEWIS, M.D.

Rumination in Man.

ASHTON, R. I., April 14, 1898.

To the Editor:—I was much interested in Dr. Sinkler's paper on "Merycism or Rumination in Man," published in your issue of the 9th inst., as I recollect that when a young man, say from 18 to 25 years of age, I frequently, at long intervals, used to return my food, especially after a hearty meal when accompanied or more often *followed* by the use of wine or other alcoholic beverage, and finding it rather agreeable, re-masticated and restored it to the stomach.

I agree with Dr. Sinkler that rumination is not the result of indigestion but of improper mastication, at least in cases where, as in my own, the food returned is sweet and pleasant, and he is undoubtedly correct in his opinion that it passes out of the stomach and ceases to be returned to the mouth as soon as it becomes fit for intestinal absorption.

N. O'D. PARKS, M.D.

Gynecology and Gynecologists in Paris.

(*Concluded from page 928.*)

PARIS, March 1898.

Dr. Championnière, though perhaps known more widely as a general surgeon than as a gynecologist, does considerable of gynecologic surgery. In doing his vaginal hysterectomies he makes his incision with a thermocautery instead of with the knife and scissors. One peculiarity about all his work is that he washes every cut surface, of whatever kind, with a 2.5 per cent. solution of carbolic acid. He uses this fluid in the peritoneal cavity with a rashness that seems astounding to one who has been taught that its toxic influence is to be feared. He is a perfect enthusiast on this subject and says that in his abdominal work, where he encounters pus sacs and the like, his results are just as good as when these complications are absent, all of which he attributes to his free use of his one to forty solution of carbolic acid. He never, under any circumstances, drains the peritoneal cavity, except in the cases where he has wounded the coats of an intestine and where he fears he may have a fecal fistula follow his operation.

For many years he did his work at the St. Louis in a couple of old wooden pavilions with wooden floors, where all the surroundings would appear to be unfavorable. He is now at the Bonjon and does his abdominal work in an isolated brick pavilion, the inside finish of which from an aseptic point of view seems to be perfect.

I remarked to him: "You can do better work here and have better results than you could at your old quarters at the St. Louis." He replied: "On the contrary, my results have never been as good here as they were at my old rickety barrack at my old home. Surroundings play no rôle in this matter. This thing of having every one who witnesses an abdominal operation put on an outside sterilized garment is all a fad. If the dirt and microbes do not touch my patient, the instruments or the dressings do not fear them. My results here are not as good as at the St. Louis, because I have not been able to organize my help here as well as I had at my old stand."

About one-half of the surgeons in Paris use ether, and the other half chloroform. Dr. Championnière says he used ether for two years and then abandoned it for chloroform, and avers that he has seen patients die six months after an operation from chest trouble which he attributed to ether.

Many gynecologists here in Paris claim that the removal of the uterus with the annexes prevent those nervous phenomena that follow the removal of the latter leaving the uterus intact. Championnière denies this absolutely, and avers that the presence or absence of the uterus after the tubes and ovaries are removed, plays no rôle in the matter whatever.

Monsieur Tuffier, at the Pitié, is a fine operator and has lately introduced an innovation in the way of a hemostatic that I think will be new to most of the readers of this article. With this new instrument, which consists of a huge clamp nearly one foot long, the clamp end of which is about one-half inch wide, and which is closed by a kind of jack-screw arrangement at its distal extremity, he is able, after applying it for a few seconds to the broad ligament and uterine arteries, to remove it and no bleeding follow. Thus he does his vaginal hysterectomies without having a single clamp or a single ligature on any blood vessel when he has completed his operation. In his abdominal hysterectomies he only puts on two ligatures, and those on the uterine arteries where the tissues are too short and unyielding to apply his clamp. If this manner of controlling hemorrhage proves a success, it will save these patients a great deal of discomfort, as well as lessen the liability of infection in this class of cases.

The Doctor banishes from his surgical paraphernalia all antiseptics. He cleanses his hands first with soap and water and then washes them in 95 per cent. alcohol. He uses aseptic gauze for all sponging and dressing purposes.

Dr. Bouilly at the Cochin does an immense amount of gynecologic surgery. He must be very popular with his fellow practitioners here in Paris, for I find that a large number of them bring their patients to him to be operated on. When Dr. Apostoli encounters a case of uterine fibroid that his electric treatment will not benefit, he brings it to Dr. Bouilly for an operation. After seeing considerable of the Doctor I am inclined to attribute his popularity to the fact that he talks but little, a virtue that many of us do not possess.

Of the many questions that are still unsettled, and with regard to which we seem to be still at sea, that of the indications for the drainage of the abdominal cavity after a laparotomy stands out as a most prominent one. The question not only as to whether or not you should drain at all but the material that you should use for your drainage, is still a bone of contention among our best operators. The glass tube that is still used by some surgeons, Pozzi and many others say, does not drain, while the gauze that one sees used so often here in Paris Bantock says is a horrid thing to put into the peritoneal cavity, as its use is likely to be followed by adhesions that will leave your patient in a wretched condition and perhaps require a second operation to break up the peritoneal adhesions that your gauze has produced. Championnière, as I have said, never drains, while Bouilly drains lavishly, using a large perforated rubber tube that he cuts off level with his abdominal wound.

Dr. Bouilly is extremely painstaking in his antisepsis and he as well as Richelot and many others in the French capital, adopt the following plan for disinfecting their hands as well as the field of operation: 1, Wash in soap, using brush freely; 2, wash in a 5 per cent. solution of permanganate of potassium; 3, decolorize the washing in a solution of bisulphate of soda; 4, wash in a 1 to 1000 solution of bichlorid of mercury; 5, finish by washing in a 95 per cent. solution of alcohol.

Dr. Doyen, though residing in Rheims, has a private hospital in Paris, where he spends two days each week. His father was professor of anatomy at the Rheims School of Medicine, was engaged in the manufacture of champagne and left a large fortune when he died. The son, instead of lavishing the money that his father left him on yachts and fast horses, seems to have a passion for fitting up palatial operating-rooms and private hospitals. The one at Rheims and the one here in Paris, though eclipsing anything I have seen of the kind, does not seem to satisfy Dr. Doyen's ambition in this direction, so he has bought a piece of ground in a central location in Paris and is erecting an institution which, when finished, will probably be the finest and most perfect of its kind in the world. Though only about 40 years of age, taking all France together, Dr. Doyen has probably the widest reputation as an operator of any man in the republic. In fact, he is looked upon as a kind of surgical prodigy (by those who are not jealous of his rising fame) on account of the daring rapidity with which he operates. In seeking for words to describe his qualities as a surgeon, I will dub him *the lightning operator of the world*. In this light to compare other good operators with him would be to compare the speed of the plow horse on the race course with a Patchen, or the old stage coach of a century ago with the modern express train as a means of locomotion. He has just published a new work entitled "Technique Chirurgicale,' which is the finest illustrated publication I have ever seen on

any surgical subject, and will certainly be a valuable addition to the library of anyone who does much surgery, and especially gynecologic surgery. It is a pity that every young doctor who is ambitious to be a surgeon can not read carefully the introduction to this work. Though it is true that the ideas advanced are those of an enthusiast, still there is a world of truth in the opinions which he sets forth. Among the fundamental ideas that he advances is that the surgeon is born and not made. As in painting, sculpture and music the world has produced a Raphael, a Michael Angelo and a Mozart, who were born with a talent that nothing could suppress, so in a like manner must the true surgeon be endowed with a genius that no education can supply. He says: "The English say time is money. I say, '*Le temps c'est la vie*,' or time is life." This idea dominates his soul and actuates his every movement from the moment he seizes his scalpel until his operation is finished. The average man is from thirty to sixty minutes in doing a vaginal hysterectomy; Doyen, in an uncomplicated case, does the same operation in four minutes. I saw him remove, *per vaginam*, a fibroid uterus as large as a large cocoanut by *morcellement* in fourteen minutes, a feat I never saw Péan do within one hour.

While it is an interesting spectacle to observe with what wonderful rapidity a man like Doyen can perform a surgical operation, if we poor, slow, common mortals, not endowed with his talent in that direction should attempt to imitate him, it would be at the expense of the well-being of our patients, though he claims his results are better than those who operate more deliberately. He looks upon aseptic surgery as a most difficult technique to carry out perfectly. The secondary complications, such as pneumonia and the like that follow surgical procedures, he attributes to an infection that occurred at the time of the operation. The great number of assistants that many surgeons have around them he considers as an element of danger, and in all the work I saw him do he had only two, one of them a female nurse who gave the chloroform and a young physician to manage the specula, retractors and the like. Before beginning an operation he selects his instruments, puts them in a receptacle before him and never allows anyone but himself to touch either these or any of his dressings.

Dr. Doyen, in his new work before mentioned, advises in cases where the tubes and ovaries are diseased, to not resort to a vaginal hysterectomy until you have first explored the pelvis through Douglas' pouch and thus ascertain whether such a radical operation as a hysterectomy is really justifiable or not.

Dr. Apostoli, in spite of the great amount of labor he has done in the treatment of diseases of the uterus by electricity and the enthusiasm with which he still pursues his investigations, does not seem to have established among the profession in Paris very much reputation for a form of therapeutics that he seems to have the most unbounded confidence in. It is some years since I first made the acquaintance of Dr. Apostoli, and always when here in Paris I spend a considerable time at his clinic, observing his mode of treatment and watching the progress of the cases that he treats. Like most men who have been pioneers in any field of investigation, the Doctor is considerable of an enthusiast; an enthusiasm with which he does not seem to have inspired many of his professional confrères either in France or America. That the treatment has not been generally popularized is fortunate for womankind, for if not used with great care it is capable of doing an immense amount of mischief. In fact, to make an intrauterine application of electricity safely requires all the antiseptic precautions that we adopt as a preliminary to doing a vaginal hysterectomy. If one follows Dr. Apostoli carefully in the number of cases of uterine fibroids that he treats, though he will observe many failures, yet he will find among them a large number that have been symptomatically cured and will be convinced that we have in this treatment a valuable addition to our often too scanty therapeutic resources.

One of the great obstacles to the introduction of electricity into gynecologic practice is that the men or many of them who ought to employ this remedy in properly selected cases, can operate, and to operate is a much easier thing to do than to treat a patient for months with electricity. But there is another aspect to this question that ought not to be lost sight of, and that is that we find many patients who will not submit to the knife, and to them this remedy holds out some hope of relief. Like everything else of whatever kind that I have tried in the treatment of disease, electro-therapeutics in gynecology has often sadly disappointed me. Yet if I should discard all the remedial agents that have failed to produce the effects that I had hoped and expected of them I should now after forty years of practice find myself occupying the position of a therapeutic nihilist. Guided by my no inconsiderable experience in the use of this agent, I find that there are certain selected cases where it acts well and can generally be relied upon, among which I may mention: 1, the treatment of uterine fibroids of slow growth and especially those occurring in women near the menopause; 2, cases of hemorrhagic metritis that are disposed to relapse after being treated by curettage and other appropriate remedies.

The prominent idea I had in view when I began writing this article was to show that gynecologists here in Paris were possessed with a mania to remove the uterus, and often performed this operation where it was entirely unjustifiable; still the reader is not to infer that I condemn the operation entirely or have not seen it done here frequently where it was probably the best line of treatment to follow. W. S. Caldwell, M.D.

PUBLIC HEALTH.

The New York City Board of Health and Hydrophobia.—During the past winter the laboratory workers of this board have had in hand experiments with an antirabietic serum and their results have been such that the board has added the Pasteurian treatment of hydrophobia to its list. The poor who chance to fall victims to this rare disease, rare at least in New York, will have the proffer of this treatment free of charge.

To Prevent the Polymerisation of Formaldehyd, Schlossmann adds glycerin and water to the formol, which fills the apartment to be disinfected with a thick vapor. If ammonia is sprayed in the room afterward the odor is entirely removed. This method of disinfection only requires three hours to kill staphylococcus cultures in the remotest corners of the room, and the room can be occupied again the same night.—*Sem. Méd.*, March 10.

Contagious Disease Bureau of New York City.—Dr. Charles S. Benedict, who has been the chief of the Bureau of Contagious Diseases in the New York City Health Department for a number of years, was recently removed by the commissioners and assigned to the minor post of diagnostician. Dr. Alonzo Blauvelt, the chief of the medical school inspectors, was appointed to Dr. Benedict's old place. The position made vacant by the transfer of Dr. Blauvelt was filled by Dr. E. J. Aspell, a former assistant of Dr. Benedict.

Associated Health Authorities of Pennsylvania.—The fifth annual meeting of this body of practical sanitarians will be held in Lancaster, Pa., May 18 and 19, 1898. It is purposed to make educational hygiene a somewhat distinguishing feature. By invitation of the State Board of Health, the Associated Health Authorities and the State Medical Society will, on Friday the 20th, visit the Lancaster County vaccine farms at Marietta, and make an inspection of all its departments. Applications for special railroad rates should be made as early as possible to Dr. William B. Atkinson, secretary, 1400 Pine Street, Philadelphia.

Health in Michigan.—The March report of the State Board of Health shows that the diseases most prevalent in the State during the month, rheumatism, influenza, neuralgia, bronchitis, tonsillitis, pneumonia, pleuritis, inflammation of kidney, diarrhea, consumption, compared with the report for February (*vide* JOURNAL, p. 680), intermittent fever, measles and erysipelas increased in area of prevalence. Consumption was reported at 127 places, measles 100, scarlet fever 69, typhoid fever 62, diphtheria 52, whooping-cough 22 and smallpox at 2 places. Compared with the average for March for twelve years, diphtheria, scarlet fever, whooping-cough, consumption, remittent fever, intermittent fever and pneumonia were less prevalent.

Health in Chicago.—The report of the Department of Health for March gives 2316 deaths during the month, a rate of 1.43 per 1000. The rate for the corresponding month in 1897 was 1.19. Of these 2316 deaths, 606 were of persons under 1 year old and 269 between 1 and 5 years. The principal causes were: Pneumonia, 377; nervous diseases, 276; consumption, 261; bronchitis, 145; acute intestinal diseases, 129; heart diseases, 119; diphtheria and membranous croup, 116; cancer, 64, and typhoid fever, 41 cases. There were 172 cases of suspected diphtheria examined, of which 45 were found to be true diphtheria, 84 false diphtheria and 43 examinations proved unsatisfactory.

Board of Health Can Not Restrict Mode of Laying Floor.—New Jersey gives boards of health power to adopt ordinances; to regulate plumbing and ventilation and secure the sanitary condition of all buildings; to regulate the keeping of all kinds of animals and the accumulation of offal; and to abate any nuisance in any place. But notwithstanding this the supreme court of that State holds, Feb. 21, 1898, in State vs. Board of Health, that the board of health of Asbury Park had no power to restrict the owners of a stable to the mode of laying a stable floor prescribed by an ordinance of the board. The owners had the alternative, says the court, of resorting to any other method which would secure the sanitary condition of the stable, though by departing from the prescribed method they took the risk of creating a nuisance. If the stable was a nuisance, the owners must be prosecuted for maintaining a nuisance and not for failing to comply with the plans specified in the ordinance.

Program of Quarantine Convention.—The health and quarantine officers of the Southern States met at Atlanta, Ga., April 12. The following was the official program: Convention called to order by Hon. C. A. Collier of Georgia, chairman of committee on arrangements.

Prayer.

Nomination and election of temporary chairman and secretary.

Chair to appoint—First, a committee on credentials; second, a committee on permanent organization, nominations, and regular order of business.

Committee on credentials shall seat all lawful health officers from the States of Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana and Texas, with full rights and privileges of convention, upon satisfactory evidence of their being such, and shall grant all privileges, except a vote, to members invited by the committee on arrangements.

Report of the above committee.

Election of a president; election of one vice president from each State entitled to representation in said convention; one secretary and one assistant secretary.

Committee report for regular order of business, as follows:

First—president to appoint a committee on plans and resolutions, with one member from each of the afore-mentioned States, to which all resolutions shall be referred without debate. All plans, codes and forms, after debate, shall be referred to this committee, who shall have the right to report at any time on above subjects. In discussing reports of this committee, no report shall be debated more than two hours. The member submitting a report shall have twenty minutes to open and ten minutes to close the debate, and no other member of the convention shall speak more than five minutes to any one report.

Dr. H. B. Horlbeck, the Health Officer of Charleston, was the permanent Chairman of the Convention. We will publish next week the resolutions which were adopted.

Dr. Horlbeck believes the Atlanta convention has reached the first solution of the problem, and that yellow fever, if it reappears in the South, will be much more easily managed than ever before.

"I do not see," said Dr. Horlbeck to a *Constitution* reporter, "why this convention may not result in a complete solution of the Southern quarantine problem. The convention did its work thoroughly. It was composed of some of the most learned physicians and sanitary experts in the entire country. Those resolutions and regulations were considered section by section by the convention and the resolutions committee, and every word therein should be carefully weighed by every southerner.

"I think there is no doubt about the adoption of the regulations by health officials. The convention was a representative one, and these men will abide by the result. It is safe to say there will be no further shot gun quarantines, and when these regulations are posted in every town and city in the South and the people are thoroughly educated as to the requirements, yellow jack will scarcely be able to show his head in this section again.

"Meanwhile, the press should use every effort to publish all these regulations. The *Constitution's* report of the full proceedings this morning could not have been better. It was excellent, and will doubtless do much good. If every Southern paper would take hold of the matter from now on, and convince the Southern people the regulations must be observed, there will be no trouble. There is no doubt that the Atlanta convention means a world of good for the South."

Formaldehyd Disinfection without Apparatus.—The Chicago Health Department claims to have obtained better results in recent municipal disinfection by the use of formalin without any apparatus than heretofore with the various autoclaves, generators and other devices. Ordinarily these, suspended in the room, were simply sprayed with the 40 per cent. solution through a common watering-pot rose head. A sheet of the usual size and quality will carry from 150 to 180 c.c. of the solution without dripping, and this quantity has been found sufficient for the efficient disinfection of 1000 cubic feet of space. Of course, the sheets may be multiplied to any necessary number.

Cultures, both moist and dry, were exposed for five hours in these experiments—some in sealed envelopes and others wrapped in three thicknesses of sheets, or folded inside of woolen blankets. Of the former, none showed growth after 72 hours' incubation, while the growth was but slight in those wrapped in the blankets. Surface disinfection was thorough, while a much greater degree of penetration was shown in these experiments than that secured by any other method.

The evolution of the gas from the sprinkled sheets is exceedingly rapid, so much so that it behooves the operator to vacate the room within a very few seconds, while, after starting the ordinary generator, he may remain ten minutes or more without serious inconvenience. When the room is opened, after five hours, the density of the gas is still so great as to preclude respiration until after doors and windows have been opened some little time. On the other hand, the air is respirable

within a very few minutes after the sheet has been removed, and there is no lingering smell of formaldehyd for days after, as is the case where the gas is evolved by the action of heat. This is due to the fact that a minimum of the paraform is produced in the evaporation of the solution at the ordinary temperature, and this is retained in the meshes of the fabric instead of being precipitated on surfaces, to be slowly converted into the gaseous form through several days.

If further experiments, which are now being prosecuted by the Department, shall confirm the results thus far obtained, the problem of practical domestic disinfection by formaldehyd would seem to be in a fair way to be solved.

On the Infusorial and other Vegetal Causation of Malodorous States of Stored Drinking Water.—Everyone is familiar with the green slime that collects and accumulates on the walls of the cistern. This is not necessarily due to stagnation, for if water be passed for some time through a capacious glass tube without stopping the flow the same green growth occurs. The growth is essentially of vegetable character and is due to algæ and certain infusoria. It is this very growth upon the filter-beds upon which the efficiency of filtration, and especially the removal of micro-organisms depends. Recent researches have shown that this growth is responsible for the objectionable taste and smell which characterize some waters occasionally. The Massachusetts Board of Health has recently made an important experimental contribution to the subject, which shows that the peculiar odors and tastes of surface waters may be due, not always to decay, but to the presence of living or undecomposed micro-organisms, either animal or vegetable, in the water affected. This is not surprising when it is considered how characteristic are the odors of some of the larger plants and animals with which we are familiar. In an interesting series of experiments these investigators have been able not only to add to the evidence upon this point by showing that the natural odor of anabena (a blue-green alga) is due to a peculiar oily product, but also to draw a sharp distinction between the natural odors of the microscopic organisms found in surface waters and the odors produced by their decay. Thus of the diatomaceæ, the asterionella, tabellaria and meridion possessed a natural odor ranging from aromatic to fishy, with no odor of decay. All the cyanophyceæ, including the anabena, rivularia, clathrocystis, celospherium and aphanizomenom, possessed not only a natural grassy moldy odor, but gave rise also to an odor of decay comparable with that of the "pig pen." Other organisms, as the chlorophyceæ and infusoria, possessed natural odors as that of "fish," "ripe cucumbers," "clam shells" and "candied violets." The anabena is marked by a high percentage of nitrogen, sulphur and phosphorus, and these elements would amply account for the production of an offensive smell produced on decomposition. There is, however, a marked distinction between the odors of growth and the odors of decay of the organisms occurring in surface waters. The usual cause of the disagreeable odors and taste occurring in potable waters is found in the presence of large numbers of certain microscopic organisms which secrete compounds of the nature of essential oils. There is no reason to suppose that these compounds are any more harmful than those which give odor and taste to fresh vegetables or to fish. But the "pig-pen" odor is produced by decay, and although the sanitary significance of these partially decomposed compounds in drinking water is yet to be determined analysis would indicate that their effect upon the general health would probably be prejudicial if it were not for the fact that they occur in such minute quantities. These products may even possess the highly toxic characters of certain alkaloids.

NECROLOGY.

GEORGE HOPPIN HUMPHREYS, M.D., Jefferson, 1856, died April 15, at his home in New York City, where he was an attending physician of Trinity Hospital. Born in Philadelphia in 1835, he was educated in part abroad, but returned to this country in 1859 and went to the front as a regimental surgeon with the Ninth New York Volunteers. At the battle of Antietam he was an active brigade surgeon. Five sons are his survivors.

Mrs. JOHN D. S. DAVIS, wife of Dr. John D. S. Davis of Birmingham, Ala., died April 1, 1898. She was secretary of the Woman's Press Club of Alabama and had achieved an enviable reputation in the literary world.

JOSEPH F. COLGAN, M.D., died on April 8 at his home, Brooklyn, N. Y., in which city he was born thirty-three years ago and where he was graduated in 1890 with honors from the Long Island College Hospital. He was the last of six generations of physicians and his father was the late Dr. Joseph P. Colgan.

JOHN D. VAN SAUN, M.D., died suddenly at his home in Jersey City from heart disease April 9. He was born in Jersey City March 21, 1851. He was graduated from Bellevue College in 1873, but gave up his practice two years ago on account of his health. He is survived by his widow and two sons.

FRANCIS R. BROOKS, M.D., Chicago, April 12 aged 31 years.——Bernard Hughes, M.D., New York City, April 11, aged 52 years.——John L. Ingersoll, M.D., Prospect, Wis., April 14, aged 75 years.——Thomas H. Rafferty, M.D. Stafford Springs, Conn., April 10.——Willis W. Hall, M.D., Springfield, Ohio, April 8, aged 42 years.——C. S. Black, M.D., St. Louis, April 6, aged 40 years.—William Irvine, M.D., Evans City, Pa., April 6, aged 70 years.

ASSOCIATION NEWS.

Railroad Rates.—The Western Passenger Association has granted a rate to Denver and return of one half fare, plus two dollars, thirty day limit, for business from Chicago, St. Louis and intermediate points. Tickets on sale June 2, 4 and 5, east of the Missouri River; June 5 and 6, west of the Missouri River. Application for similar rates has now been made to all other Passenger Associations and railroads not controlled by them. Announcement giving rates and rules governing the sale of tickets will be published in the JOURNAL of the ASSOCIATION as soon as decision is made. The rate named is as low as accorded any convention this year. A round trip rate of $20 from Salt Lake and Ogden, thirty day limit, is also announced.

COMMITTEE OF ARRANGEMENTS.

Section on Obstetrics and Diseases of Women.—Preliminary program of the Section on Obstetrics and Diseases of Women, AMERICAN MEDICAL ASSOCIATION. On the afternoon of the second day, there will be a joint session between the Sections on Obstetrics and the Diseases of Women and Neurology, to discuss the relation between uterine and nervous diseases. On the part of the Obstetrical Section, papers will be presented as follows:

Address by the Chairman, Joseph Price, Philadelphia, Pa.

On Pathology, by Lewis McMurtry, Louisville, Ky.

Association of Uterine and Nervous Disturbances, by Joseph Eastman, Indianapolis, Ind.

Indications and Contraindications for Surgical Interference, by Franklin H. Martin, Chicago.

These are to be discussed by M. B. Ward, Kansas City, Ferdinand Henrotin, Chicago, and Henry O. Marcy, Boston.

Other papers promised:

Is it Necessary to Drain so Frequently in Pelvic Surgery? by Wm. H. Humiston, Cleveland, Ohio.

Pelvic Inflammatory Diseases: How Shall we Remove Them? by A. H. Cordier, Kansas City, Mo.

Descensus Ovariorum, by A. Goldspohn, Chicago.

Are Ovarian Tumors Rare in Negresses? by I. S. Stone, Washington.

Further Experiences in the Management of Uterine Displacements, by Augustus P. Clarke, Cambridge, Mass.

The Influence of Uterine Curettage and Drainage on Tubal Diseases, by W. W. Grant, Denver, Col.

Etiology and Treatment of Endometritis, by James T. Jelks, Hot Springs, Ark.

Perineorrhaphy and the Structures it Involves, by Byron Robinson, Chicago.

Intraligamentous Growths (Prefers to read by title), by Thomas H. Hawkins, Denver, Col.

Some of the Dangers Incident to Alexander's Operation for Retrodeviation of the Uterus, by Hugh M. Taylor, Richmond, Va.

Why the Operation of Ventral Fixation or Suspension is Unsurgical, by John B. Deaver, Philadelphia, Pa.

The Curette and Curettage, by Chas. B. Nickols, Denver, Col.

Vaginal Incision in Extra-uterine Pregnancy, by W. H. Wathen, Louisville, Ky.

The Treatment of the Retrodisplaced Uterus, by J. A. Lyons, Chicago.

Puerperal Gonorrhea, by Chas. S. Bacon, Chicago.

Easier Labors and Healthier Offspring, by Ephraim Cutter, New York, N. Y.

Prophylaxis of Gynecologic Diseases, by D. W. Bashan, Neal, Kan.

The Influence of Sex on Disease, by Louis Faugeres Bishop, New York, N. Y.

Compound, Intra-uterine Fracture of the Femur, with Report of a Case, by A. D. Wilkinson, Lincoln, Neb.

A Consideration of Some of the Remote, Unusual and Misleading Symptoms of Pelvic Diseases, by H. D. Niles, Salt Lake City, Utah.

Non-Suppurative Form of Pelvic Inflammation, by L. H. Dunning, Indianapolis, Ind.

Manifestations of Pelvic Inflammations, by H. C. Crowell, Kansas City, Mo.

False Labor Pains, by T. Mitchell Burns, Denver, Col.

The Fallacies of the Forceps Mechanically Demonstrated, by J. J. E. Maher, New York, N. Y.

Hemato-salpinx and Congenital Uterine Atresia, by Alex. Hugh Ferguson, Chicago.

The Treatment of Septic Peritonitis by Irrigation, by T. J. Maxwell, Keokuk, Iowa.

The Special Mark upon the Abdominal Wall of Pregnancy that Exists at the Time of, or Occurs Subsequently to Celiotomy, by Albert H. Tuttle, Cambridge, Mass.

Report of a Case of Bilateral Dermoid Cysts of the Ovaries and Presentation of Specimens, by Jabez N. Jackson, Kansas City, Mo.

The Treatment of Ambulatory Gynecologic Cases, by Denslow Lewis, Chicago.

Anterior Colpotomy and Shortening of the Round Ligaments Through the Vagina for the Relief of all Cases of Retroversion of the Uterus, Simple or Complicated, by J. Riddle Goffe, New York, N. Y.

The Early Diagnosis of Malignant Diseases of the Uterus, by Frederick Holme Wiggin, New York, N. Y.

Anatomic Helps in Abdominal and Pelvic Surgery, by Charles E. Ruth, Keokuk, Iowa.

Pathology and Treatment of Peritonitis, by T. J. Beattie, Kansas City, Mo.

A Case of Tubal Pregnancy with Rupture at the End of the Sixth Week; Operation and Recovery, by J. E. Cowles, Los Angeles, Cal.

Indications for Plastic Surgery of the Cervix Uteri, with a New Method of Operating, by Henry P. Newman, Chicago.

Surgical Treatment of Uterine Myoma, by Henry O. Marcy, Boston.

Maternity Hospitals and Obstetrical Teachings, by George C. Mosher, Kansas City, Mo.

The Relation of Local and Constitutional Diseases to Perverted Ovarian Function, by J. M. Richmond, St. Joseph, Mo.

The Advantages of a Supplementary Sustaining Stitch in the Treatment of Abdominial Hernia, by B. Sherwood Dunn, Boston, Mass.

The Study and Teaching of Obstetrics, by Eliza H. Root, Chicago.

Suspension of the Uterus: The Ideal Method for Retroflexion with Adhesions, by G. Wiley Broome, St. Louis, Mo.

Ovarian Pregnancy, by M. C. McGannon, Nashville, Tenn.

The permanent program must be completed and be in the hands of the Committee of Arrangements at Denver, by Saturday, May 7. C. LESTER HALL, Sec. Section Obstetrics and Diseases of Women.

SOCIETY NEWS.

Texas Medical Association.—The thirtieth annual meeting of the Texas State Medical Association will be held April 26–29, 1898, at Houston, Texas.

American Orthopedic Association meets at Boston, Mass., May 17, 18 and 19, 1898. The preliminary program includes the following papers:

Operative Treatment of Paralytic Deformities, by Bernard Bartow.

A Brace for Cervical Spondylitis, by Wallace Blanchard.

An Inquiry into Epidemics of Infantile Paralysis, and the Late Treatment of that Disease; and Caries of the Spine in Adults, by E. G. Brackett.

Congenital Dislocation of the Hip Joint, Correction of Stiffness of the Joints by means of the Pendulum Apparatus; and Normal Flexibility of the Anterior Part of the Foot and Means to maintain it, by E. H. Bradford.

Remarks on the Various Gaits of Children, illustrated by some instantaneous photographs, by W. N. Bullard.

Adenoids as a Causal Factor in Deformity, by F. S. Coolidge.

Congenital Absence of the Fibula, by F. J. Cotton and A. L. Chute.

Further Studies upon the Arch of the Foot in Infancy and Childhood; and A Newly-modified Splint for Knock-knee and Bow-leg, by John Dane.

An Operation for the Correction of Web-fingers; and exhibition of; *a*, A Brace for Pott's Disease of the Spine; *b*, A Brace for Lateral Curvature; *c*, A Head Support for Torticollis and Cervical Caries, by G. G. Davis.

Bed Position as an Etiologic Factor in Spinal Curvature, by G. W. Fitz.

The Boot as an Orthopedic Appliance, by H. P. N. Galloway.

A Study of the Final Results in 150 cases of Hip Disease; The Forcible Correction of Spinal Deformities by Stages under an Anesthetic; and the Results of Treatment for the Closure of Sinuses in Tuberculous Disease of Bone, by V. P. Gibney.

An Operation for Un-united Fractures of the Neck of the Femur, by A. J. Gillette.

The Immediate Reduction of the Deformity of Pott's Disease, both with and without Ether; Tendon and Muscle Transplantation (report of forty cases); and the Importance of Twists of the Tibia as the Cause of Toe-in and Toe-out, by J. E. Goldthwait.

Subtrochanteric Osteotomy of the Femur for the Correction of Deformities resulting from Hip Disease (report of ten cases in adults), by J. E. Goldthwait and C. F. Painter.

Bullets and Gunshot Wounds, by J. D. Griffiths.

Spasmodic Torticollis, by H. J. Hall.

The prevention and Correction of Short Leg in Hip Disease, by Robert Jones.

The Manual Treatment of Rotary Lateral Curvature; its Uses and Limitations with a demonstration, by Samuel Ketch.

Local Muscular Weakness as a Cause of Joint Irritation; Faulty Attitude from Muscular Weakness; and A Brace for Pott's Disease, by Robert W. Lovett.

A Demonstration of Some Practical Points in the Anatomy of the Foot, by Robert W. Lovett and F. J. Cotton.

Forcible Correction and Physical Training in Orthopedic Practice, by B. E. McKenzie.

Traumatisms of the Spine simulating Pott's Disease, by T. Halstead Myers.

The Anterior Achilles-bursa associated with Exostosis (by invitation) by C. F. Painter.

The Forcible Correction of Deformity in Pott's Disease, by F. E. Peckham.

Congenital Dislocation of the Shoulder; Its Etiology and Pathology, and an Operation for its Relief, by A. M. Phelps.

Forcible Straightening of Spinal Curvatures under Complete Anesthesia, with a report of cases, by John Ridlon.

Operations for Congenital Dislocation of the Hip; Excision of the Hip Joint; and Hip-Joint Mechanics, by H. M. Sherman.

Deformities in Rickets, by J. S. Stone.

Hallux Valgus Extremus, by A. J. Steele.

A Bivalve Plastic Brace for Pott's Disease; and Growth in Spondylitics, by Henry Ling Taylor.

Report of a Case of Persistent Spasm of the Muscles of the Hip simulating Hip-joint Disease, and Treatment of Contractures by Open Incision and Free Division of all Restraining Tissues (report of cases), by Wm. J. Taylor.

Congenital Dislocation of Shoulder, Forward Dislocation of Hip, and Iliac Abscess of Pott's Disease, complicating Strangulated Femoral Hernia, by R. T. Taylor.

Absence of the Patella (report of two cases); Voluntary Lateral Dislocation of the Knee in Infants; and Experiments with the Celluloid Bandage, by Augustus Thorndike.

Congenital Dislocation of the Shoulder and Birth Palsies, and Report of a Case of Spontaneous Dislocation of the Hip during Typhoid Fever, by L. A. Weigel.

Observations on Anterior Metatarsalgia; and Further Observations on Coxa Vora (a report of twenty-six cases), by Royal Whitman.

Skiagraphy in Lesions of the Hip-Joint, by James K. Young.

Special Equipment of the Children's Orthopedic Ward, University Hospital, by De Forest Willard.

The Establishment of an Orthopedic Appliance Shop, Lemuel F. Woodward.

It is requested that members write Dr. Augustus Thorndike, 601 Beacon Street, Boston, stating what accommodations they desire and which hotel they prefer. If they will state further, either then or later, on what train they will arrive, some members of the Committee will be glad to meet them and escort them to their hotel. The attention of members is particularly called to the request that a synopsis of each paper shall be in the hands of the President by May 7, 1898. In this way alone can members be sure of a place on the final program. The following terms are offered to members of the Association by the hotels named: The Touraine (Boylston and Tremont Streets), European plan, $2.00 a day and upward; The Victoria (Dartmouth and Newbury Streets), European plan, $1.50 to $3.00 a day; The Brunswick (Boylston and Clarenden Streets), American plan, $4.00 a day; The Thorndike (Boylston and Church Streets), European plan, $1.00 to $2.50 a day.

The American Laryngological, Rhinological and Otological Society hold its fourth annual meeting at Pittsburg, Pa., May 11 and 12, 1898. The program includes the following papers:

The Relation Between Diseases of the Nose and Nasopharynx and Middle Ear Inflammation, by Edw. B. Dench, New York.

Hemorrhage of the Lower Throat or Hemorrhage from the Larynx and Laryngeal Tonsil, by Howard S. Straight, Cleveland.

Pathology and Treatment of Tonsillitis Abscendens, by Norval H. Pierce, Chicago.

Rhinoliths, by S. F. Hill, Waterville.

Dysphonia, by T. C. Christy, Pittsburg.

Modern Possibilities in Chronic Catarrhal Deafness, by Sargent F. Snow, Syracuse.

A Case of Rhinopharyngeal Fibroma with Projections Extending to both Anterior Nares, by H. W. Loeb, St. Louis.

Primary Epithelioma of the Antrum of Highmore, by Wendell C. Phillips, New York.

Sarcoma of the Nasopharynx, with Report of a Case, by D. A. Hengst, Pittsburg.

1, Gumma of Pharynx: 2, Rheumatic Pharyngitis, by Geo. T. Ross, Montreal.

Report of Thirty Cases of Antral Empyema, by Frederic C. Cobb, Boston.

Chronic Inflammation of the Pharyngeal Tonsil, by Chas. N. Cox, Brooklyn.

The Tricks of the Trade, or the Mechanical Technique of Operative Rhinology and Laryngology, by H. B. Hubbard, New York.

Remarks on Surgical Treatment of Caries of the Nose and Ear, by H. L. Wagner, San Francisco.

Acute Suppurations of the Middle Ear, by James E. Logan, Kansas City.

Brain Abscess Complicating Chronic Purulent Otitis Media, with Report of Case, by James F. McKernon, New York.

Papilloma of the Larynx; Alcohol in the Treatment, by T. H. Halstead, Syracuse.

Some Remarks on Cholesteatoma of Mastoid, with Report of Cases, by J. E. Sheppard, Brooklyn.

Pseudacousina and Report of Two Cases of the So-called Enuchoid Voice, by F. H. Koyle, Hornellsville.

Deductions from a Study of Unilateral Nasal Stenosis, by Lewis A. Coffin, New York.

Hemorrhagic Tracheal Catarrh, Ferdinand Massel, Naples, Italy.

After Treatment of Restored Deflected Nasal Septum, by Chas. W. Richardson, Washington.

Operative Procedures in Staphylorrhaphy, by J. C. Lester, Brooklyn.

1, Further Consideration of Basil and Basilateral Diseases of the Faucial Tonsils, with Improved Instruments for Treatment of same; 2, Report of Two cases of Nasal Adhesive-tissue Stenosis, Congenital and Scarlatinal, by Robert C. Myles, New York.

Some Observations on the Diagnosis and Treatment of the Singing Voice, by F. E. Miller, New York.

The Proper Mode of Laryngoscopic Examination, with Exhibition of an Improved Mirror, by H. Holbrook Curtis, New York.

Serious Consequences Following Intranasal Operations, by Robert Levy, Denver.

Empyema of the Maxillary Sinus by J. A. Stucky, Lexington.

Perichondritis and Necrosis of the Arytenoid Cartilage, by Wm. Scheppegrell, New Orleans.

The Relation of Nasal Disease to Pulmonary Tuberculosis, by S. E. Solly, Colorado Springs.

Case of Adeno-carcinoma of the Nose, by Max Thorner, Cincinnati.

Othematoma and Perichondritis of the Auricle, by John O. McReynolds, Dallas.

Mouth Breathing in Children, particularly as the Result of Adenoids, by Arthur G. Hobbs, Atlanta.

Bilateral Abductor Paralysis, with Report of Several Cases in which Intubation was Successfully Used, by W. Cheatham, Louisville.

Oklahoma Territorial Medical Association.—The annual meeting of the Oklahoma Territorial Medical Association will convene in Oklahoma City May 5, 1898, for a two days' session. The following papers are promised:

Bowel Diseases Incident to Hot Weather, by W. K. Harris, McLoud.

Maxillary Abscess and Its surgical Treatment, by A. L. Blesh, Guthrie.

Medical Jurisprudence, by Judge J. R. Keaton, Oklahoma City.

"Where Are We At" in Gynecologic Work, by M. A. Kelso, Enid.

Hernia, by J. H. Rolater, Oklahoma City.

Diseases of the Kidney Encountered as Complications in General Practice, by J. H. Scott, Shawnee.

The Management of Abortions, by G. E. McKeeby, Guthrie.

Best Means of Preserving Our Soft Rubber Surgical Appliances, by G. W. Fairgrieve, Enid.

Obstetrics, by N. W. Mayginness, Stillwater.

Asthenic or Enteric Fever, by A. B. Baird, Oklahoma City.

Rupture of the Perineum and Its Treatment, by J. M. Carson, El Reno.

Typho-mlarial Fever, by Wilson Stuve, Oklahoma City.

Emergency Measures in Obstetric Practice, by C. B. Bradford, Oklahoma City.

Suprapubic Cystotomy for Hypertrophied Prostate, by C. A. Cravens, Oklahoma City.

Acute Intestinal Obstruction, by W. J. Muzzy, El Reno.

Curettage of the Uterus, by C. W. Fisk, Downs.

NEW INSTRUMENTS.

THE INTRA-GASTRIC REAGENT CAPSULE—A SIMPLE DEVICE FOR TESTING THE GASTRIC REACTIONS.

BY FENTON B. TURCK, M.D.
CHICAGO.

A ready and convenient method of ascertaining the condition of the gastric secretions in disorders of the stomach has not hitherto been satisfactorily afforded by the appliances at our command. The inconveniences of the stomach-tube have caused resort to other devices, all of which have been more or less unsatisfactory, and have failed to receive general approval and adoption; the sponge tester of Spallanzani and Edinger,[1] Einhorn's[2] silver bucket, Spaeth's[3] pith pellets, etc., are all of them in their way imperfect in their performance, and otherwise objectionable. The tube itself is a disagreeable appliance, and in certain hysteric and nervous patients almost an impracticable one, at least without such compulsory measures as are used with the insane, so that its employment is often given up, to the doctor's discomfiture and the patient's disadvantage. It has, moreover, its actual dangers, and a very formidable list of conditions in which such exist might readily be compiled. Such a one, indeed, is given by Hemmeter,[4] including pregnancy, certain forms of cardiac and vascular disease, advanced pulmonary disorders, pronounced cachexia, fevers, hemorrhagic tendencies, general or local, and amongst special gastric disorders, ulcerous and malignant growths and various neuroses. Many of these are very real and serious dangers that may be suspected when not positively diagnosed, and thus

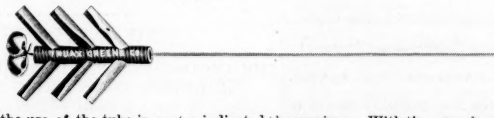
[1] Edinger: Deutsche Arch. f. Kl. Med., xxix, 1881, p. 555.
[2] Einhorn: Medical Record, July 19, 1890.
[3] Spaeth: Muenchen. Med. Wochenschr., xxxiv, 1887, p. 1011.
[4] Diseases of the Stomach, 1897.

create an uncomfortable doubt as to the safety and propriety of the use of the tube in some cases. It is also an imperfect appliance in that its presence as a foreign body in the stomach is itself liable in some cases to produce conditions that may vitiate the findings, as I have experimentally demonstrated in several instances to be reported later in the paper.

To meet these objections I have devised the following described apparatus, which I believe permits a qualitative examination of the gastric reactions better than any other yet proposed. It consists in a simple section of a small rubber drainage tube, about one inch in length, through slits in which are passed strips of test papers to the number of three or four, the whole attached to a silk thread and folded up in an ordinary sized gelatin capsule. The thread is passed out through a sealed opening at the end of the capsule and is of sufficient length to enable the tube to be withdrawn when the capsule has dissolved. A small lead shot is appended to insure thorough contact. The reagents I have used in this simple apparatus are congo red, dimethyl-amido-azo-benzol and neutral litmus. Others can be employed as needed or desired, but these have served my purpose in the examinations made. The capsule is easily swallowed, and only a very slight inconvenience is felt at the withdrawal of the tube by the string. If desired, the tube may also be so folded as to act as a bucket on being drawn up, and thus minute samples of the stomach secretion be obtained for bacteriologic or other examination.

The danger of this appliance is minimized and can be neglected from consideration in almost any case. It is not more irritating to the stomach than would be a piece of bolted food, and as compared to the stomach-tube, altogether unobjectionable.

Its advantages are: 1. In patients, who from nervousness, or otherwise, can not take the stomach-tube; who, in attempting it, stop breathing and suffocate, or who find it impossible to swallow it, or are excited by it to violent gagging or retching. There are many of these three classes.



2. In all cases where the use of the tube is contra-indicated by the reasons given above, either assured or suspected (especially in cases of ulcer of the stomach).

3. It permits as many tests as may be required or desired to be made the same day, or rapidly succeeding one another, without serious irritation or inconvenience. With the tube this would be impossible in most cases, and dangerous or seriously inconvenient in all.

4. The capsule is not as liable as the tube to excite the flow of HCl in the stomach, thus by its presence vitiating the test.

5. Any practitioner can, without special trouble and experience utilize this method at the bedside, in the office, or elsewhere. The patient himself can be instructed how to use it, and can make the tests at such times as are thought best, and save the papers for the physician's inspection.

6. Its results are prompt and reliable, and while not like quantitative tests, they afford at least an approximate estimate by the degree of the color reactions. As a qualitative test it gives exact data as to the presence or absence of free HCl. The congo red reaction is reliable for even a slight trace of free HCl, or of larger quantities of the organic acids, while it does not show the presence of acid salts or combined hydrochloric acid. These are to be detected by the neutral litmus paper. The dimethyl-amido-azo-benzol paper furnishes a still more delicate and absolutely exclusive test for free HCl.

7. It furnishes also, to a certain extent, the means of making microscopic and bacteriologic examinations, and, therefore, in this respect is not seriously inferior to the tube, while superior to it in nearly all others.

8. The capsule being non-repulsive to the patient, is easily taken, and if the use of the tube is afterward indicated he is less likely to object to its employment than if it was attempted without such preliminary experience. This is a practical advantage of more importance than might be at first supposed.

9. As several tests should be made on each case, to secure a positive diagnosis, the capsule has a very marked advantage over the tube in that it does not remove partly digested food, and thus interfere with nutrition.

I have experimentally demonstrated that the presence of the stomach tube by itself is sufficient to produce the reaction of free HCl. In a case of hyperchlorohydria free HCl was found in the morning in the empty stomach. The viscus was washed out and, after waiting one hour, the tube revealed free HCl.

The next morning the tests were repeated, but after the washing out of the stomach, instead of the tube, the capsule was introduced, and no free HCl was found, no dimethyl-amido-azo-benzol or congo red reactions. Later the tube was introduced and free HCl determined. The tube, therefore, excited the flow of hydrochloric acid, while the capsule did not. This is in agreement with Pick's[5] statement as to this effect of the use of the tube, while Ewald[6] says that this may also be caused by the swallowing of the saliva or the pharyngeal secretions, or be due to the presence of substance from the duodenum.

In the above experiments Leube's method was followed in washing out the stomach, fifty cubic centimeters of a 3 per cent. solution of bicarbonate of soda being used. The reaction should then be neutral according to Leube.

The idea of testing the reaction of the gastric fluids *in situ* is not new; it is one that would naturally be suggested to one on considering the disadvantages of the tube. Hitherto, however, no very satisfactory method has been suggested. Spaeth's pith pellets and thread come the nearest to the device I have described, but they do not appear to have received much favor, or to have been adopted for this purpose to any extent. The material is not as convenient or readily available as the test-papers, the unprotected pellet and shot is not as easily swallowed or as unobjectionable to the patient; it is also liable to be affected by the oral or pharyngeal secretions in the deliberate and often difficult process of swallowing, and can not therefore be accepted as a perfectly reliable index of the condition of the lower viscus. With the capsules all these objections are avoided to the fullest possible extent, and the tests can be multiplied as far as desired.

With the apparatus as above described we have a method that is readily available to the general practitioner, and one that renders possible a much wider extension of a valuable diagnostic method that is too often neglected on account of the difficulties and inconveniences of the ordinarily recommended stomach-tube.

The capsules can be improvised if necessary, but have been made up for me in quantities by Truax, Greene and Co.

MISCELLANY.

Expulsion of Fetus with Membranes Intact.—Myers (*Penn. Med. Jour.*, March), reports a case of expulsion of a mature fetus with the membranes intact. The mother had a week before received a fall, at that time evidently causing the separation of the placenta and the death of the child.

Floating Naval Hospital.—Surgeon-General W. K. Van Reypen, U. S. N., has been inspecting the steamship *Grande Duchesse* with a view to recommending that the vessel be purchased by the government for use as a hospital ship in the war between this country and Spain.

Dying Declarations Need Not be Made All at One Time.—There is no rule of practice or of law, says the supreme court of Louis-

[5] Präger Med. Wochenschr., 1889, No. 18.
[6] Lubarsch und Ostertags Ergebnisse der Special. Pathologie, Bd. iii. S. 27. Quoted from Hemmeter.

iana, in State vs. Ashworth, January, 1898, requiring that a dying declaration should be made all at one time, without interruption, or turning aside to other matters. Neither, as the court holds, does the fact that the declaration was elicited by questions asked the deceased by the witness, instead of being a volunteered statement, render it inadmissible.

New Journals.—A new publication, the *St. Louis Medical Gazette*, is announced to begin with the May number. M. F. Engman, M.D., St. Louis, is managing editor.——The *Journal of the Alumni Association* of the College of Physicians and Surgeons, Baltimore, Vol. i, No. 1, April, 1898 is noted among our exchanges. It is to be issued quarterly at $1.00 per year. William S. Gardner, M.D., Baltimore, is the editor.

The Great Virchow.—The *London Times* has recently been guilty of a *lapsus calami* regarding the eminent pathologist of Berlin, by calling him out of his name, as follows: It spoke of him as "the great Virchow, the well known professor of physiology at the University of Berlin." Let us consider that it was a slip of the pen and not a mark of ignorance, but all the same Virchow's friends and colleagues have taken a great deal of innocent merriment out of it.

Professor Rieder of Constantinople.—The Turkish Government having asked for a professor of medicine from Germany, the Emperor has granted the necessary authorization to Dr. Rieder of the University of Bonn. The newly appointed professor is to receive $6000 a year. He will also have an assistant, who is likewise a German. The latter is to have a salary of $3000 a year. Dr. Rieder is charged with the reorganization of the medical school. Besides their services at the school these gentlemen will also inspect the military hospitals of the city.

The New York Hospital Library.—Impending changes in the hospital have led to the gift of its old and valuable collection of books to the New York Academy of Medicine. By this accession, the library of the latter will become the largest of the private medical collections in the country. The old and historic building, known as the Thorne Mansion, that occupies a part of the Sixteenth Street front of the hospital grounds, and one which was in turn partly occupied by the library, will be torn down. The improvements that are to be made this spring and summer in the hospital property will aggregate in cost about $400,000.

Baron Larrey, whom Napoleon I. called "the most virtuous man I have ever known," at the age of 26 years joined the army of the Rhine, and was the physician of the so-called "flying ambulance" for twenty-two years. He was present in sixty great battles, Waterloo was one, and four hundred engagements. He performed numberless operations; it is said that he did two hundred amputations in one day; he operated often on the field, once took off the leg of a high officer in a driving snow storm, while two other officers held a cloak over his patient. His name stands only below that of Ambroise Paré, his great prototype.

Can Not Be Turned Over to Marine-Hospital Service.—The suggestion was recently referred to the Treasury Department that drugs seized and forfeited to the United States for violation of the revenue laws be turned over the Marine-Hospital Service upon payment of the duty thereon, as the government would thus be likely to derive more benefit than if they were sold at auction, as they usually sell for merely nominal sums. But in reply, Assistant Secretary Howell states, March 18, 1898, that under section 3077, Revised Statutes, all seized goods forfeited to the United States, except when the importation thereof is prohibited by law, are required to be sold at public auction, and that the above suggestion can not, therefore, receive favorable consideration.

Aggravation of Injuries.—The supreme court of Missouri said, when the personal injury case of Fullerton vs. Fordyce was recently before it for the second time, that an injured person should use reasonable care to prevent an aggravation of his injuries, and will not be allowed to recover compensation for such as could have been avoided by the exercise of such care and prudence. Aggravation of injuries by subsequent negligent conduct on the part of the plaintiff may be considered by the jury in mitigation of damages. But to require one who has been injured to take proper and immediate steps to prevent future consequences, the supreme court thinks, is demanding of him a degree of care and an infallibility of judgment which the most skilful physician does not possess. The law requires nothing so unreasonable.

Enucleation of Parovarian Cyst.—Beyea reports (*Am. Jour. Obstet.*, March) a case in which he enucleated a parovarian cyst without removal of its tube or ovary. The cyst was the size of a large turkey egg, the tube stretched over the superior surface, the abdominal ostium patent, and the tube non-diseased. The ovary was of normal size and contained a number of small follicular cysts. A small incision was made through the peritoneal capsule, or mesosalpinx, on the superior surface between the tube and ovary. This was enlarged by tearing and the cyst shelled out. The small cysts in the ovary were punctured and the uterus ventrosuspended, the patient being out of bed in twenty-two days. But one similar case has been reported and that by Kelly in the *Johns Hopkins Hos. Bull.*, Vol. viii, No. 72.

Migraine and Epilepsy.—Rachford (*Am. Jour. of the Med. Sci.*, April), concludes that paraxanthin is an all-important factor in the production of true migraine, also in one form of epilepsy, toxic epilepsy according to his classification of epilepsies into reflex, mechanical and toxic. He has demonstrated that paraxanthin is found in great excess in urine secreted during attacks of migraine, is not excreted in excess in migrainous patients except during the attack, and that a certain class of epileptics also present these conditions in the urine, etc. He has always failed to find paraxanthin in the urine of patients with focal or reflex (hereditary) epilepsy and considers the presence of an excess of paraxanthin in the urine of epileptics an essential diagnostic point in ascertaining the variety of epilepsy from which the patient is suffering.

Cirrhosis of the Liver.—In "A Study of Thirty-seven Fatal Cases of Cirrhosis of the Liver," in the *Boston Medical and Surgical Journal*, March 10, Morse shows that cirrhosis with enlargement, without change in size, and with diminution in size, are equally frequent, and that the size of the liver is increased in a third of the cases. The male sex is more frequently affected. Cirrhosis with enlargement is more common in younger people, and cirrhosis with atrophy in old. The average duration of symptoms is longer in the atrophic cases. The duration of symptoms, however, varies within wide limits in all varieties. Hemorrhage is a not infrequent cause of death in all forms, and a fatal hemorrhage may be the first symptom even in the hypertrophic form. An alcoholic history was obtained in every case in which the subject was investigated. A history of previous malaria, syphilis or gall-stones was occasionally obtained, but in none did it seem of etiologic importance.

Recent Work in Appendicectomy.—Bernays (*Medical Record*, April 2) reports a series of eighty-one cases, all acute with one exception, all suppurative or gangrenous, and four complicated with peritonitis, with perfect recovery with one exception. He favors operating in the acute stage and as soon as the diagnosis is made. In one of this series the stump of the appendix was allowed to remain on account of contraindications to its removal. He considers the diagnosis of appendicitis easy and certain in about 99 per cent. of all cases, unless the symptoms be masked by opiates, a practice to be condemned. Twice the appendix was found on the left side of the body. Seventy of

the cases were consecutive suppurative or gangrenous appendicitis. In all but one the appendix was perforated. As to prognosis, he believed that more than one-half will recover from the first attack without operation, that 20 per cent. of all cases terminate fatally, if not operated on, from septicemia, in either the first or second attack, and that two cases in 100 or 150 will terminate fatally in the hands of expert operators.

Hernia in Infancy and Childhood.—Coley, writing on the "Management of Hernia in Infancy and Childhood" (*Archives of Pediatrics*, April), considers hydrocele of the cord as the condition most frequently mistaken for hernia in infants and children, but the history of the case and the general condition of the patient, as a rule, renders diagnosis easy. As to treatment, gentle taxis for one or two minutes should be tried. If this fails, application of hot cloths, from fifteen to twenty minutes, followed by taxis under chloroform, after all preparations for operation have been made. If this also is unsuccessful, immediate operation. As to the use of a truss, the younger the patient, the more probability of a cure from wearing one. That all cases of hernia in infancy are not cured by the truss, he has shown by an investigation during the past year, covering 26,388 cases. Of 15,197 cases over 21 years of age, he found 705 in which the hernia was observed before the age of 14 years. He estimates that 25 to 30 per cent. of children are not cured by trusses.

Prevalence of Herpes Zoster.—In the *Phil. Med. Jour.* for March 26, Cantrell gives in detail the occurrence of this disease in Philadelphia during the twenty years, 1876–1896. The zoster cases numbered 193, or 1.09 per cent. of the patients treated. Of these 183 were whites and ten colored. The youngest person so affected was 3 years old and the oldest 72 years, there being two cases at this latter age. The majority of the cases were persons having indoor occupations. Among the colored the following regions were affected: Pectoralis, four instances; abdominalis, two instances, both on left side; femoralis, three instances and on left side; brachialis, one and on right side. Among the whites the affected regions were: pectoralis in fifty-eight males and four females; abdominalis in eleven males and sixteen females; femoralis in thirteen males and eleven females; brachialis in fifteen males and six females; capillitii in two females; frontalis in five males and two females; ophthalmicus in two males and one female; facialis in two males and two females; nuchar in four males and six females. In 110 cases the left side of the body, in eighty-three the right was affected. About half the cases occurred between 10 and 30 years of age and, in males, laborers were more often affected, cooks and chambermaids among females. There was not a single instance of bilateral herpes.

Miniature Hammers in Suture of Bile Ducts.—Halsted (*Bulletin of the Johns Hopkins Hospital*, April) writes concerning little hammers and their use in suture of the bile ducts. The hammers vary in size to meet all cases. He exposes the duct at the site selected for incision, usually near the duodenal end in the common duct. Before incision he inserts two retractor threads, the incision being made between these. Then, after removing the gall stone, the retractor threads are drawn apart and the hammer introduced, the duct being gently raised and drawn toward the operator by the hammer. Mattress stitches are then applied, one behind the other in front of the handle. The following are the advantages in the use of the hammer: 1. The duct to be sutured can be drawn toward the incision in the anterior abdominal wall and within easy reach of the operator; it can also be manipulated nicely by the hammer. 2. The duct, whether normal or thickened and dilated, is gently expanded by the hammer; hence the stitches can be taken with great accuracy and without fear of including the opposite wall or of occluding the lumen of the duct. 3. The operation is a clean one, because the hammer blocks the duct and this prevents the escape of its contents and the contents of the gall bladder. 4. With the hammer, wounds of thin normal ducts can be easily and almost infallibly sutured, and hence the surgeon may, if he chooses, fearlessly operate upon the common duct as soon as the obstruction takes place.

County Not Liable for Attendance on Indigent Persons.—The poor laws of Mississippi, the supreme court of that State says, are intended for the class of persons mentioned in the statute who apply for support thereunder, and who are found by the board of supervisors, upon examination, to be entitled to such support, or for persons who, being of the class intended, apply for support, and die before being so adjudicated. But that a person is indigent, and stands in great need of medical aid, does not of itself, the court holds, in Tallahatchie County vs. Harrison, March 14, 1898, entitle him to the benefits conferred by the statute. For example, the court holds, in this case, that the county was not liable for the medical services rendered a man, who recovered from his sickness, where there was no evidence that he had ever been declared a pauper by the board of supervisors, nor that he desired to be so declared, and provided for by the county, though it was in evidence that he was very poor, had a blind wife and several minor children unable to render any assistance for the support of their parents, and a member of the board declared that he thought the man a pauper, and would die unless attended to, and requested the physician to attend him, and promised that he would see that the board paid the claim.

The Non-Equivalence of the Cerebral Hemispheres is discussed in the *Presse Méd.* of January 29, by Klippel, who considers the differences between the two hemispheres sufficient to entitle them to be called the male and the female, as the right seems to be more easily fatigued, while the left is more intellectual and stable. Functional paralysis, hysteric accidents and dynamic disturbances are more frequent on the left side on this account, also the abolition of the reflexes and the more pronounced action of anesthetics, while the localized lesions, of aphasia especially, show the intellectual superiority of the left hemisphere. Anatomic and pathologico-anatomic differences between the two hemispheres can frequently be distinguished. This non-equivalence is peculiar to man, he adds, and indicates a higher functional differentiation; it may even account for the phenomena of dual personality.—*Rev. de Psych.*, February.

The X-Rays in Tuberculosis.—Stubbert (*Phila. Med. Jour.*, March 12) reports observations made at the Loomis Sanitarium for Consumptives during the past year, with X-rays in the diagnosis of tuberculous changes in lung tissue, as follows: 1. Slight haziness indicates the beginning of tuberculous infiltration and may or may not be accompanied by dulness. 2. Decided shadows indicate consolidation, the extent of which is in direct relation to the comparative density of the shadow thrown on the fluoroscope. 3 Circumscribed spots of bright reflex, surrounded by narrow dark rings or located in the midst of an area of dense shadow, indicate cavities. 4. Intense darkness, especially at the lower portions of the lungs, indicates old pleuritic thickenings over consolidated tissue. 5. Pleural effusions are shown in dark shadows, the upper level of which may be agitated by succussion. 6. There is no reason to doubt that the effusion of pericarditis would throw a like shadow, which would be distinguishable from the heart shadow above by its greater blackness. 7. Shadows thrown in the first and third stages of pneumonia probably resemble those of tuberculous infiltration. The shadow of the second stage of pneumonia is identical with that of tubercular consolidation. 8. In emphysema and asthma the reflex is abnormally clear, and the movement of the diaphragm is restricted.

Farinacea in the Diet of Later Infancy.—Miller writes on this subject in the *Archives of Pediatrics* (April). He says it is an every day experience to see an infant who has thriven upon the

breast or artificial food during its first year, suffer continually from digestive disturbances when that period has passed, and this is largely due to adding to the dietary, under the impression that the former dietary is no longer nourishing enough, pure milk, bread, potatoes, crackers and strong porridges. This persisted in leads to chronic intestinal indigestion. The child during the second year does not need the large proportion of carbohydrates it receives in earlier life, *i. e.*, 6 of carbohydrates to 1 of proteid, and is not able to assimilate them if given in large amounts in farinaceous food. The child at this period requires more nitrogen in proportion to other food elements than in the first year, and to secure its complete oxidation this should be given with the minimum of carbohydrates. Potatoes should not be given until the twenty-fourth month and then always baked. Orange juice supplies their antiscorbutic properties very well. Potatoes and oatmeal are the most active causes of indigestion at this age. All farinaceas should occupy a secondary place in the child's diet until the child has shown his capacity to digest them, which is usually not before the twenty-fourth month.

Infantile Mortality.—Dr. Letters has contributed an article to the *Dublin Journal of Medical Science* upon the mortality of infants in Ireland, in which he says that they are allowed to perish in myriads by feeding-bottles with foul rubber tube-fittings, by farinaceous substances which ferment and decompose as soon as ingested, by neglect, by exposure, by deprivation of the natural nutriment, by preventable causes like premature birth, by preventable diseases like diarrheas and diseases of the respiratory organs. Infants want protection against that killing ignorance which does them to death by artificially induced diarrheas, by convulsions from improper feeding, by marasmus from starvation. Let the question of the saving of infant life receive from the profession that measure of study to which it is justly entitled, let the best means be formulated to stem the infantile death current in our populous urban centers, and let the legislature be urged to deal with the subject in a spirit of humane comprehensiveness. It is unfortunately true that Ireland is not the only country to which these words might be applied.

The New York University Medical Department.—The teaching faculty of that school has risen as one man, with the exception of one man, against the governing body, the Council. They will resign and, it is believed, will inaugurate a new medical college in affiliation with the Cornell University. The discrepancy that has given occasion to this radical action is an alleged non-fulfillment of certain agreements by the University Council. Until about a year ago the medical school was practically independent of the university. It owned its own property, was governed by its own faculty and conducted its own examinations. Its only connection with the university was that the university granted degrees on its recommendation. About that time an agreement was made by which the property was transferred to the university and the government of the school was vested in the University Council. The faculty was reappointed, and certain stipulations were made as to their prerogatives, the endowment of certain chairs and the financial management of the school. These stipulations have not been satisfactorily met and the faculty stepped down and out, leaving behind them a very valuable property, a large part of which was due to the organizing prowess of the late Dr. A. T. Loomis, whose son is among the come-outers. The staff that is about to retire contains the names of Drs. William M. Polk, Lewis A. Stimson, W. Gilman Thompson, George Woolsey, R. A. Whithaus, H. P. Loomis, F. W. Gwyer, J. C. Edgar and I. S. Haynes. The member of the faculty who remains is Dr. Lefevre, the secretary, who sides with the majority of the University Council. The present site of the school has been occupied since 1870. The buildings were enlarged in 1875, and in 1886 the Loomis laboratory and a dispensary were added. All these buildings will be lost to the faculty except the Loomis laboratory, which, under the deed of gift, could not be alienated. A late despatch from Ithaca, N. Y., states that a gift of $500,000 has been made to Cornell by Colonel Oliver H. Payne of New York City, in the interest of the proposed new medical school. Mr. Payne is spoken of as one of the magnates of the Standard Oil Company; he has been interested in medicine for some time, having served as a trustee of New York University medical department.

The Hatfield Research Fund.—At Philadelphia a trust deed has been recorded, the effect of which will be the founding of a memorial prize fund that will be open to American medical men who are doing original work in medicine. This trust deed is executed by Walter Hatfield and Henry Reed Hatfield, who state it is to found a memorial to their father, Nathan Lewis Hatfield, and by it they convey to Drs. J. M. Da Costa, Herbert Norris and Robert G. Le Conte, $6,000, the income from which is to be paid in prizes, which are to be announced, awarded and published by the College of Physicians of Philadelphia, and each of which is to be known as "The Nathan Lewis Hatfield prize for original research in medicine." The president of the college is to triennially appoint a committee, with the consent of the trustees, and this committee is to select the subject for the best treatment of which the prize will be awarded, under its direction, or the committee may leave the selection of the subject to the authors competing for the prize. This announcement must be made one year before the time fixed for handing in the essays in competition, and the prize can never be less than $500. The announcement of the first prize will be made next fall, and it must be on a subject of general medicine, medical pathology or therapeutics. The prize memorial essay or research will be published in the transactions of the college under the direction of the trustees. Dr. Hatfield, in whose memory his sons have founded the trust, has been dead ten years. For forty-five years he was in various capacities identified with the College of Physicians, was at the time of his death its oldest member, and was president of the Alumni Association of Jefferson Medical College.

Hardening of Tissues for Microscopic Examination.—Huber (*Jour. of Applied Microscopy*, March) describes three methods of of practical utility to the general practitioner. 1. He places small pieces of the tissue not exceeding one-eighth to one-quarter of an inch in diameter, at once into 95 per cent. alcohol. He uses, in volume, about twenty times as much alcohol as the volume of the tissue to be hardened, advises placing a little absorbent cotton in the hardening fluid and renews the alcohol daily the first three days. Five days hardens the tissue sufficiently for further manipulation, or it may be transferred to 80 per cent. alcohol and stored for future use. 2. If formalin is used it is best as a 4 per cent. solution. It penetrates the tissues readily and hardens pieces not more than one-quarter of an inch thick in twenty-four hours. Fifteen to twenty times the volume of the tissue should be used and kept in a well-stoppered bottle. Transfer to 80 per cent. alcohol for storing away, may be made at the end of twenty-four hours. 3. A third method, one of the best for general work, is the use of Zenker's fluid: Bichromate of potassium, 5 parts; sulphate of sodium, 2 parts; bichlorid of mercury, 10 parts; distilled water, 200 parts; glacial acetic acid, 10 parts; the first three ingredients pulverized in a mortar and dissolved in the water, and just before the solution is to be used add the glacial acetic acid. The tissue, pieces one-quarter to an inch thick, is hardened in twenty-four hours, when they should be washed in running water another twenty-four hours and are then ready for preservation in 80 per cent. alcohol. In this method a precipitate of mercury often left on the tissues may be removed by adding to the alcohol into which the tissues are placed after washing some tincture of iodin, when a colorless

compound, the iodin color disappearing from the alcohol; to remove all the mercury, the iodin should be added from time to time, until no longer removed from the alcohol, indicated by the alcohol remaining brownish in color. If it is desired to make a bacteriologic examination as well as a pathologic diagnosis of any given tissue, alcohol should be selected as the hardening fluid. If it is desired to harden the tissues rapidly and simply to determine the nature of the tissue, formalin will answer very well. If, on the other hand, it is desired to make out the finer details of the protoplasm and nuclei of the cellular elements of the given tissue, Zenker's fluid should be used in preference to the other two hardening reagents mentioned. The tissues should not be washed nor soaked in water before placing in the hardening fluid and should be handled as little as possible.

Washington.

WEEKLY REPORT OF THE HEALTH OFFICER.—The report of Health Officer Woodward for the week ended April 9, shows the total number of deaths to have been 104, of which 60 were white and 44 colored. There were 36 cases of diphtheria and 48 cases of scarlet fever under treatment at the close of the week.

MEDICAL ASSOCIATION.—At the meeting of the Board of Counsellors of the District Association, held on the 13th inst., Dr. Raymond T. Holden was elected chairman, and Dr. Clifton Mayfield secretary.

MEDICAL SOCIETY.—At the meeting of the Society held on the 13th inst., Dr. A. R. Shands read a valuable and exhaustive paper entitled "Prognosis and Treatment of Lateral Spinal Curvature." The next meeting of the Society will be held jointly with the Anthropological Society.

MEDICAL INSPECTORS APPOINTED.—Upon the recommendation of Health Officer Woodward, the District Commissioners have appointed Drs. Louis J. Battle and John L. Norris inspectors, under the Act to prevent the spread of contagious diseases. Their special duty will be to keep under surveillance those persons who were exposed to the case of smallpox which recently developed at the Freedman's Hospital.

Louisville.

MCMURTRY.—Dr. L. S. McMurtry has removed his office from 231 W. Chestnut St. to his infirmary (formerly the Jennie Casseday Infirmary) 1912 Sixth Street, opposite St. James Court.

CLINICAL SOCIETY.—The regular meeting of this Society was held April 12 at Seelbach's Hotel, the guest of Dr. T. G. Dabney, who read a paper entitled "Ocular Headaches." At the last meeting the resignation of Dr. T. C. Evans, as a member, and as the Society's President was read and accepted, and Dr. Philip F. Barbour was elected to the Presidency.

OPHTHALMOLOGICAL SOCIETY.—This Society being the eighth medical society now in existence in Louisville, was recently organized with thirteen members. Dr. T. C. Evans is President.

HAUSER.—Dr. Catherine Hauser has resigned her position as second assistant physician at the Hopkinsville Insane Asylum and has gone to St. Louis to reside.

SLOANE.—Dr. John Sloane, for many years a respected citizen of New Albany, one of the Fall's cities, died on the 12th inst. He was born in September, 1815, and most of his life has resided in New Albany.

BULLOCK.—Dr. Thos. S. Bullock has gone to Arkansas for a short stay, to obtain a much needed rest.

STATE MEDICAL SOCIETY.—The State Medical Society, under the Presidency of Dr. J. M. Mathews of this city, convenes at Maysville, May 11. It is proposed that Louisville members go all of the way by boat, chartering it and living in it during the session. Owing to the annual convention of another organization at the same place during the State meeting, the one hotel will be taxed to the utmost, and the steamboat will be well patronized. An excellent program is already assured. Those who desire to go by this boat should communicate with the President of the Society, Dr. J. M. Mathews.

Philadelphia.

HEALTH REPORT.—Mayor Charles F. Warwick's recent report for the year just passed contains many medical items of interest. The death rate was 18.72 per 1000, being the lowest for thirteen years; diphtheria prevailed to a greater extent than for several years, as also did scarlet fever; no case of smallpox had been reported (April 4) since October, 1895. There were 2994 cases of typhoid fever for the year 1897, and 401 deaths, one less than the preceding year. The number of cases reported is an increase of 504 over last year, which was believed to be due to the overflow of the intercepting river near Manayunk, November 16. The Mayor takes a strong position against the present dilapidated and insanitary condition of the Municipal Hospital. He says that on the upper floors, where the sick are confined, the food is received in and distributed from bath rooms which are in close proximity to a double row of water closets. The hospital is so overcrowded that in many instances patients with scarlet fever, and those suffering from measles, are put in the same ward. While plans are now being made for the improvement of the building, it has been considered a pest house and such uncertainty keeps the plans held in check. The Mayor says: "This question should be set at rest and acted upon definitely. It is said by those who know that institutious of like character are located in the very center of the large cities of Europe. The science of public sanitation has made such an advance in modern times that surrounding neighborhoods are comparatively safe and free from contagion. So far as this institution itself is concerned, it has never been shown that the health of the immediate neighborhood has in any wise been affected by its presence." For the proper care of patients suffering from smallpox, he recommends the erection of a separate hospital. In 1887 the city used 32,426,779,765 gallons of water against 95,667,466,871 in 1897. The consumption per capita per day was 89 gallons as against 187 gallons in 1897, or an increase in ten years of 100 per cent., which the Mayor thinks is extravagant. Regarding the improvement of the water-supply, he comes out very strongly for a system of filtration.

TWO CASES OF SMALLPOX.—As will be seen in the foregoing, the city of Philadelphia has been free from smallpox since October, 1895. Director Riter, however, gave publicity to a case of smallpox which was discovered last month but the information had been suppressed. The patient, a Mr. Clarity, was employed in a cotton factory and the source of infection supposed to have been through the medium of cotton shipped from the south. The case was reported March 20 and the patient sent to the Municipal Hospital for treatment. The 120 employes in the factory were promptly vaccinated. Notwithstanding all the precautionary measures had been taken by the health officer, Dr. Benjamin Lee, a brother of the first case also became affected with the disease. This case also worked in the cotton mill with his brother and it is not known whether he contracted the disease from the same source or from his brother. It is reported that there is a great deal of the disease in Georgia and other cotton States and that it is gradually working its way north, and the health officer will notify all boards of Pennsylvania in order that wholesale vaccination may be done.

EASTER MUSIC FURNISHED BY INSANE PATIENTS.—For the past two months Mrs. Daniel E. Hughes, wife of the chief resident physician of the Philadelphia Hospital has been endeavoring to control a choir of forty insane patients. The forty singers have chairs on the flower-decked platform, all the women being dressed in white gowns and the men in white linen suits. They are all taught by ear. Many of the choir are said to be epileptics and a usual scene was for one to be attacked while the song was in progress. It is said that music has a quieting effect on the violent cases and has benefited the cases of melancholia at Blockley.

MEETING OF STATE BOARD OF MEDICAL EXAMINERS OF PENNSYLVANIA.—The next meetings of the State Board of Medical Examiners will be held in Pittsburg and Philadelphia at 2 o'clock, June 14. Three Philadelphia physicians are on the board: Dr. S. W. Latta, Dr. H. A. Hulshizer and Dr. Henry Beates.

Cincinnati.

THE mortality report for the week shows: Still births, 5; zymotic diseases, 12; phthisis pulmonalis, 8; other constitutional, 7; local, 44; developmental, 8; violence, 6; total, all causes, 90; annual rate per thousand, 11.55; under one year, 19; between one and five, 7; preceding week 136; corresponding week, 1897, 99; 1896, 142; 1895, 149.

THE annual report of the Cincinnati Hospital has just been compiled and it shows that 4818 patients were admitted of which 3261 were males and 1557 females. There were 378 deaths; 88 were moribund when admitted, leaving the actual mortality 10 per cent. The financial report shows: Expenditures $115,464.38; indebtedness $122,613.64; appropriation $114,000; balance owed from 1896, $7,149.26. Total excess of appropriation $8,613.64. The earnings amounted to $5,289.34, mostly derived from pay patients.

THE annual report from the Branch Hospital for tubercular patients shows: Admissions, 64; males, 47; females, 17; remaining, 21; improved, 8; unimproved, 11; discharged, 14; died, 29; average age, less than 30 years.

Dr. E. G. CARPENTER of Cleveland has been appointed Superintendent of the Columbus State Hospital to succeed Dr. A. B. Richardson, who goes to the Massillon State Hospital.

THE annual report of St. Mary's Hospital shows: Admissions, 2086; male, 1417; female, 669; deaths, 138; discharged, 1742; remaining, 205; nationalities represented, 19; extensive improvements in the way of a microscopic and bacteriologic laboratory have been made during the year, while a new mortuary with a specially designed refrigerator has been built.

Dr. H. W. BETTMANN announces his removal to 20 W. Ninth Street.

QUITE a good deal of deserved criticism has of late been made regarding the methods adopted by one of the larger hospitals to secure patients. It has been found that this institution has been in the habit of sending to neighboring towns its representatives who make it a point to ingratiate themselves into the good graces of the most enthusiastic and earnest church workers and as soon as possible a list of the prospective or possible patients is obtained through this ecclesiastic influence; the skill of the staff, as well as the many advantages of the institution are presented in glowing terms to these unfortunates who are soon persuaded to engage beds for their accommodation.

ACADEMY OF MEDICINE.—At the regular meeting of the Academy of Medicine, April 11, Dr. Joseph Eichberg read a paper entitled "The Treatment of Typhoid Fever without Cold Baths." The essayist stated that the strenuous objections made by typhoid patients to entering a plunge, the frequent occurrence of cyanosis and other alarming symptoms following the emersion, the mental disturbance induced by the thought that after a certain interval they would again be put into the tub, a consideration of the danger incurred in lifting such patients to and from the bath, all led him to adopt a method not open to the same annoyances and one in which the patient could be readily watched by one attendant. He did not regard his plan of treatment as in any way specific; he thought good nursing and especially strict observance of the details of nursing, absolute rest, isolation from friends, etc., as of the greatest value in the treatment. Briefly his plan was as follows: The temperature was looked upon as the principal indication as to the progress of the disease. Every time the temperature reached 102.5 degrees (axilla) or 103 degrees (mouth), the patient was given four grains of acetanilid and a tablespoonful of whisky. If this dose was followed by chills or other depressing symptoms, it was cut down to three grains or even to two; if it did not control the temperature it was increased six, never more. This kept the temperature down for an average of six hours. An ice-cap was put to the head and kept there until the temperature had remained normal for twenty-four hours. The diet was limited to milk and albumin water. The patients were given fifteen drops of dilute hydrochloric acid three times a day or two grains of quinin in a teaspoonful of chlorin water three times a day. If bowels did not move daily, a simple enema was given. Diarrhea was controlled by Hope's camphor mixture. When the evening temperature had remained normal for a week, the patient was allowed to sit up in bed at first for an hour a day; he was gradually returned to a normal diet, an increase beginning at the time of first sitting up. The essayist had treated over one hundred cases by this method, of which the majority were males; there were in all nine deaths, three of which had received considerable hydro-therapeutic treatment in addition to the acetanilid, so that considering only the cases strictly by his method, but six cases died, making the mortality 4.25 per cent. While acknowledging the alarming and fatal results sometimes following the use of the coal tar derivatives, the speaker plead the smallness of his dose; the fact that it was not continued for a long period of time, the average for all cases being a fraction over six days; the average amount of the drug during this period being 53 grains, a daily dose of eight grains, or two four-grain doses per day; the fact that whisky was given with the acetanilid. The typhoid mortality in the hospital from which these cases were tabulated, for all services and methods of treatment, was something over 10 per cent.

In the discussion, Dr. Dunham reported a fatal case, death occurring two hours after a cold bath, temperature dropping to 94 degrees within a few minutes after removal from the tub; duration of bath, five minutes; cause of death thought to be internal hemorrhage; no autopsy. Dr. Cleveland thought acetanilid acted more as an antiseptic than as an antipyretic. Dr. Fackler believed each patient a law unto himself; thought symptomatic treatment the safest; condemned Brand method of treatment; stated that in the Cincinnati Hospital, during 1897, of the twenty cases treated in that manner, five died, a mortality of 25 per cent.; of the remaining seventy-seven cases, two, which were treated by hydrotheraphy, not Brand method, died; of the seventy-five left, all treated by the various coal tars, but three died. He concurred in everything said by the essayist except that he preferred lactophenin and phenacetin to acetanilid. Dr. E. W. Mitchell favors the Brand method in some cases. He thought that now only the worst cases were treated in the Cincinnati Hospital by this method, and quoted Harris' statistics, collected from an immense amount of material from various countries, treated by method of Brand, with a mortality of 7.5 per cent.; treated otherwise, 10.5 per cent., but said he should not, however, confine himself to one line of treatment. The paper was also discussed by Drs. Oliver, H. M. Brown, G. Mitchell, Adams, Kiely, Ricketts (surgical treatment of perforation), Schenck (condition of blood), Bettmann (antiseptic medication), Friend, Malony, Murphy and the essayist. The Woodbridge treatment was mentioned only to be condemned.

Societies.

The following recent meetings are noted:

Illinois.—Chicago Medical Society, April 20; Chicago Pathological Society, April 11; Kankakee County Medical Society, Kankakee, April 7; McDonough County Medical Association, Macomb, April 5; Western Ophthalmological, Otological and Rhinological Association, Chicago, April 7 and 8. Fulton County Medical Society, Cuba, April 12; McLean County Medical Society, Bloomington, April 7.

Indiana.—Allen County Medical Society, Fort Wayne, April 5; Bartholomew County Medical Society, Columbus, April 5; Marion County Medical Society, Indianapolis, April 5; Tippecanoe County Medical Society, Lafayette, April 4.

Iowa.—Clinton County Medical Association, Clinton, April 5; Polk County Medical Society, Des Moines, April 5; Wapello County Medical Society, Ottumwa, April 5.

Kansas.—Golden Belt Medical Society, Abilene, April 8; Topeka Academy of Medicine, April 11.

Maine.—Maine Academy of Medicine and Science, twenty-fourth annual meeting, Portland, April 11.

Massachusetts.—Boston Medical Society, April 12; Hampden Medical Association, Springfield, April 7.

Minnesota.—Winona County Medical Association, Winona, April 5; Minnesota Academy of Medicine, Minneapolis, April 6.

Missouri.—Hodgen Medical Society, Rich Hill, April 7; Medical Society of City Hospital Alumni, St. Louis, April 7.

New York.—Broome County Medical Society, Binghamton, April 5; Hornellsville Medical and Surgical Association, April

6; Medical Association of Troy, April 5; Syracuse Academy of Medicine, April 5; Utica Medical Library Association, April 4; Dunkirk and Fredonia Medical Society, Dunkirk, April 12; Glens Falls Medical and Surgical Society, April 7; Niagara County Medical Society, Buffalo, April 7.

Ohio.—Lucas County Medical Society, Toledo, April 1; Cuyahoga County Medical Society, Cleveland, April 7; Eastern Ohio Medical Association, Steubenville, April 12.

Pennsylvania.—Lancaster City and County Medical Society, April 6; Lycoming County Medical Society, Williamsport, April 5; Schuylkill County Medical Association, Pottsville, April 5; Cumberland County Medical Society, Mechanicsburg, April 12; Lackawanna County Medical Society, Scranton, April 12; Luzerne County Medical Society, Wilkesbarre, April 6.

South Carolina.—The forty-eighth annual meeting of the State Medical Association, Harris Lithia Springs, April 13 and 14.

Wisconsin.—Fox River Medical Society, Marinette, April 12; Northwestern Wisconsin Medical Association, Stevens Point, April 12.

CHANGE OF ADDRESS.

Anner, J. F., from Shell Rock to Osage, Iowa.

Barker, J. L., from 884 6th Street, to City Hospital, Louisville. Ky.;

Bufkin, C. W., from Des Moines to Bevington, Iowa.

Carroll, Jr., C. T., from Fountain City to Marvin, Tenn.

Douglass, W. H., from St. Louis to Benton City, Mo.; Duffield, S. P., from Detroit to Dearbon, Mich.

Fankbouer, A. V., from Indianapolis to Marion, Ind.

Gerhards, G. S., from Hot Springs, Ariz., to Ardmore, Pa.; Goins, G. W., from St. Louis to Breckinridge, Mo.

Habenicht, R. H., from Iowa City to Clinton, Iowa; Hughes, O. J. D., from Meriden, Mass., to U. S. Consulate Sonneberg, Germany.

Jones, E. A., from Louisville, Ky., to Sioux Falls, S. Dak.

Klassen, V. P., from 212 W. Taylor Street to 1462 Wabash Avenue, Chicago, Ill.; Kerr, Walter., from 528 Sutler to 1200 Van Ness Avenue, San Francisco, Cal.

Lippincott, J. A., from Castleman Street, to 435 Pennsylvania Avenue, Pittsburg, Pa.; Longacre, C. E., from East Lynn, Mo., to Westphalia, Kan.; Lumley, R., from 1074 N. California Avenue to 960 Warren Ave., Chicago.

Moody, H. A., from Mobile to Bailey Springs, Ala.; Miller, J. R., from Gaffney to Rock Hill, S. C.; McNamara, F. W., from 107 E. Adams Avenue to St. Mary's Hospital, Detroit, Mich.; McColl, N. J., from Elkton to Twinning, Mich.; Moulton, M. W., from Iowa City to Maquoketa, Iowa; Morgans, S. L., from Iowa City to Dubuque, Iowa.

Nichols, C. L., from 122 S. Lincoln Street, to 227 Winchester Avenue, Chicago, Ill.

Pennington, G. S., from Keokuk to Milton, Iowa.

Prather, D. J., from Los Angeles to Oakland, Cal.

Rectanus, T., from Cincinnati, Ohio to Shelby and Jefferson Streets, Louisville, Ky.

Sylvester, H., from Milwaukee to Mineral Point, Wis.; Schirfee, J. F. from Indianapolis to Fairland, Ind.; Scott, A. C., from 18 Plymouth Place to 825 Willson Avenue, Cleveland, Ohio; Sibley, R. B., from Louisville, Ky., to Clarksburg, W. Va.

Thomas, F. W., from Denver, Colo., to Marion, Ohio; Thrasher, A. B., from 708 Walnut Street to 7th and Race Street, Cincinnati, Ohio.

Van Benschoten, from Chicago to 1419 Chicago Avenue, Evanston, Ill.

Wyland, G. V., from Chicago to Lyndon, Ill.; Wall, F. X., from 21 Park Avenue to 108 State Street, Chicago; Williamson, J. L., from St. Louis, Mo., to Lowell, Ark.; Wharton, J. E., from Des Moines, Iowa to Jacksonville, Ill.

LETTERS RECEIVED.

Brumbaugh, A. B., Huntington, Pa.; Buck, S. C., Cresco, Iowa; Bristol Medico-Chirurgical Journal, Bristol, England.

Campbell, E. R., Bellows Falls, Vt.; Cincinnati College of Medicine and Surgery, Cincinnati, Ohio; Cleaves, Margaret A., New York, N. Y.

Donohue, M. J., Chicago, Ill.; Dollber-Goodale Co., Boston, Mass; Daniels, F. H., Batavia, Ill.; Denison, Charles, Denver, Colo.

Egbert, Seneca. Philadelphia, Pa.; Elgin Milkine Co., Elgin, Ill.; Egan, J. A., Springfield, Ill.

Fassett, Chas. Wood, St. Joseph, Mo.

Harris, J. W., Ogden, Utah; Houghton, E. M., Detroit, Mich.; Hirschfelder, J. O., Monterey, Cal.; Hamilton, E. E., Wichita, Kan.; Hall, C. Lester, Kansas City, Mo.; Hektoen, L., (2) Chicago, Ill.

Jayne, W. A., (2) Denver, Colo.

Kuehn, A. G., Cleveland, Ohio; Kress & Owen Co., New York, N. Y.; Kelly, M. J., Warehouse Point, Conn.

Lee, Elmer, New York, N. Y.; Law, J. C., Summerfield, Kan.; Lord & Thomas, Chicago, Ill.

Moore, D. S., Jamestown, N. D.; Miles, R. G., New Castle, Pa.; Mills, Chas. K., Philadelphia, Pa.; McGillicuddy, T. S., New York, N. Y.; Miller, C. D., Pottsville, Pa.

Pettibone Bros. Mf'g. Co., The, Cincinnati, Ohio; Proctor & Collier Co., The, Cincinnati, Ohio; Parke, Davis & Co., Detroit, Mich.

Ravogli, A., Cincinnati, Ohio.

Somers, Lewis S., Philadelphia, Pa.; Spiller, B. G., Philadelphia, Pa.; Sander, Enno, St. Louis, Mo.; Simmons, George H., Lincoln, Neb.; Sternberg, Geo. M., Washington, D. C.; Thomas, C. P., Spokane, Wash.; Truax, Greene & Co., Chas., Chicago, Ill.

Woodward Company, R. H., Baltimore, Md.; Woodward, Wm. C., Washington, D. C.; Wilson, A. J., Chicago, Ill.; Warner & Co., W. R., Philadelphia, Pa.

PAMPHLETS RECEIVED.

Amblyopia from Suppression, Congenital Imperfection or Disuse: Which or All? By Leartus Connor, Detroit, Mich. Reprinted from Jour. American Medical Association.

Color Blindness. Some of the Inefficiencies of the Methods Ordinarily Employed by Railway Surgeons for the Detection of Subnormal. By Charles A. Oliver, Philadelphia. Reprinted from Annals of Ophthal. and Otology.

Consumption, How to Avoid Catching. For gratuitous distribution by the Washington State Medical Society. Dr. F. H. Coe, Seattle, Wash.

Craig Colony, Fourth Annual Report of. Paper. Pp. 124. Illustrated. N. Y. S. Reformatory Press: Elmira, N. Y., 1897.

Hemorrhoids, The Suture-Clamp Operation for. By Llewellyn Elliott, Washington, D. C. Reprinted from Therapeutic Gazette.

Honolulu. Report of the Board of Health for the biennial period ending Dec. 31, 1897. Paper. Pp. 186. Honolulu: Printed by the Hawaiian Gazette, 1898.

Hospital Buildings on the Pavilion Plan, A Description of. By Albert Vander Veer, Albany, N. Y. Reprinted from Albany Med. Annals.

Illustrirte Rundschau der Med.-Chir. Technik. Paper. Pp. 92. Illustrated. By Dr. Gustav Beck, Berlin: K. J. Wyss, 1898.

Intussusception, or Ileus. Successfully Treated by the Introduction of Carbonic Acid Gas into the Rectum. By E. D. Beach, New Orleans, La. Reprinted from N. O. Med. and Surg. Jour.

Loomis Sanitarium for Consumptives, First Report of. Paper. Pp. 30. Illustrated. Liberty, N. Y. 1897.

Medical Registration and Examination, Second Annual Report of Ohio State Board, 1897. Paper. Pp. 64. Columbus, Ohio, 1898.

Menstruation, Effects of the Erect Position on Diseases of Women and. By M. E. C. Gehrung, St. Louis, Mo. Reprint.

Ocular Muscles, Contribution to the Study of the Dynamics of. By J. M. Banister, Ft. Leavenworth, Kan. Reprinted from Annals of Ophthal.

Ophthalmic Practice, Experiences During Thirty-eight years of, with Large Parancentesis of the Sclerotic with Ciliotomy in Acute Glaucoma. By S. Pollak, St. Louis, Mo. Reprinted from Am. Jour. of Ophthal.

Pathfinders, The. By James T. Jelks, Hot Springs, Ark. Reprinted from Hot Springs Med. Jour.

Pharyngitis Herpetica Associated with Menstruation. By Lewis S. Somers, Philadelphia. Reprinted from Philadelphia Med. Jour.

Proprietary Medicine Question, Solution of the. By C. C. Fite, N. Y. City. Reprinted from Phila. Med. Jour.

Refraction, On the Necessity of Repeated Examinations in the Correction of Errors of. By Cassius D. Wescott, Chicago. Reprinted from Ophthal. Record.

Sarcoma, Influence of Injury upon the Development of. By William B. Coley, N. Y. City. Reprinted from Annals of Surg.

Thyroid Gland, Some of the Therapeutic Properties of. By J. T. Eskridge, Denver, Col. Reprinted from Col. Med. Jour.

Tumor of the Spine: Compression-Myelitis: Operation. Death on the Ninth day. By J. T. Eskridge and Edmund J. A. Rogers, Denver, Col. Reprinted from Phil. Med. Jour.

Water-Supply and Sewage Disposal in the District of Columbia. Senate Document No. 183, 55th Congress, 2d Session.

Yellow Fever, Serum Diagnosis of. By P. E. Archinard, R. S. Woodson and John J. Archinard, New Orleans, La. Reprinted from N. O. Med. and Surg. Jour.

Trade Pamphlets.

Dickens' Doctors, Vol. II. The Arlington Chemical Co., Yonkers, N. Y.

Plairfair School of Midwifery, Annual Announcement for 1898. Chicago.

Rational Treatment of Gastric and Intestinal Disorders. By Charles Marchand, New York City.

Waldheim Sanitarium Illustrated. Dr. J. H. Voje, Oconomowoc, Wis.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from April 9 to 15, 1898.

Capt. Francis A. Winter, Asst. Surgeon, is relieved from duty at the U. S. Military Academy, West Point, N. Y., and ordered to Jefferson Bks., Mo., for duty at that post.

Lieut.-Col. David L. Huntington, Deputy Surgeon-General, retirement from active service by the President on April 10, 1898, by operation of law, is announced.

First Lieut. George Rauchfuss, Asst. Surgeon, the order assigning him to Ft. Apache, Ariz., is revoked.

Major Henry McElderry, Surgeon, is granted leave of absence for four months on surgeon's certificate of disability, to date from his arrival at the Army and Navy general hospital, Hot Springs, Ark.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending April 16, 1898.

P. A. Surgeon L. L. Van Wedekind, detached from the naval academy and ordered at once to the "Minneapolis."

P. A. Surgeon L. E. Spearing, detached from the naval hospital, Philadelphia, Pa., and ordered at once to the "Columbia."

Asst. Surgeon H. H. Haas, detached from the "Vermont" and ordered at once to the "Texas."

Asst. Surgeon E. V. Armstrong, commissioned Asst. Surgeon from April 5.

Asst. Surgeon W. H. Bucher, commissioned Asst. Surgeon from April 5.

Medical Inspector D. Diejerson, ordered to marine headquarters, Washington, D. C.

Surgeon D. H. Bertolette, detached from the marine headquarters, Washington, D. C., and ordered to the "Vermont."

Surgeon W. H. Rush, ordered to the "Dixie" at once.

Surgeon J. M. Edgar, detached from the "Vermont" and ordered to the "Prairie."

P. A. Surgeon J. M. Pickrell, detached from the hospital, Washington, D. C., and ordered to the "Yosemite."

P. A. Surgeon A. M. D. McCormick, detached from the naval academy and ordered to the "Yankee."

P. A. Surgeon M. R. Pigott, ordered to the naval academy at once.

Surgeon L. G. Henneberger, ordered to the bureau of medicine and Surgery.

Medical Inspector M. C. Drennan, detached from the "NewYork" and ordered home to wait orders.

Medical Inspector C. U. Gravatt, detached from the "San Francisco" and ordered at once to the "New York" as fleet surgeon.

Surgeon A. C. H. Russell, detached from the naval museum of hygiene and ordered to the "San Francisco."

Surgeon F. J. B. Cardeiro, detached from the "Michigan" and ordered to the "New Orleans" at once.

Asst. Surgeon W. H. Bucher, ordered to the "Vermont" temporarily.

Asst. Surgeon E. V. Armstrong, ordered to the "Scorpion."